

2015

Town of Burgaw Bicycle and Pedestrian Plan



11/10/2015

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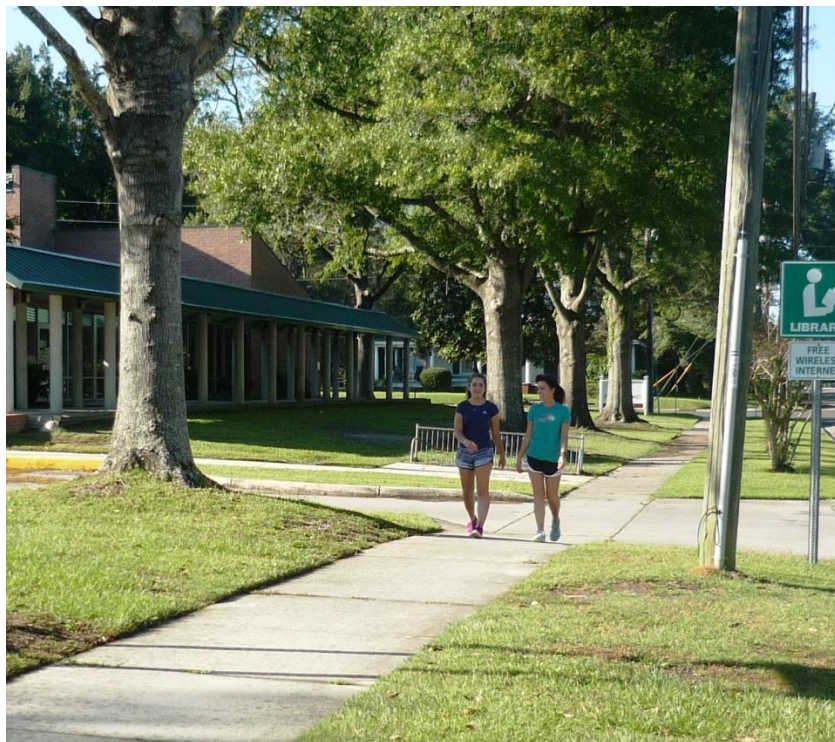
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Executive Summary

Why plan for bicycle and pedestrian travel?

The Town of Burgaw understands the importance of its transportation system in maintaining the quality of life of its residents and attracting visitors, new businesses, and industry. It is the



town's goal to create and maintain a comprehensive transportation network that will ensure the safe and efficient movement of people and goods, regardless of mode of travel; provide appropriate access to employment, housing, services, and recreation; and reduce the need of residents to rely on automobile travel. In addition, the town recognizes the importance of transportation systems in encouraging physical activity, promoting healthy living, and reducing the risk of chronic illness. A safe and comprehensive bicycle and pedestrian transportation

network will increase the public health, safety, and general welfare of the town's residents.

Over the past decade, the Town of Burgaw has increased investment in pedestrian and multi-use infrastructure. However, as the town's demographics change and infrastructure needs grow, the town needs a plan on how to implement bicycle and pedestrian amenities in a cost-effective and strategic manner. Because funding for such projects is limited, the Bicycle and Pedestrian Plan is intended to outline community priorities so the town can coordinate bicycle and pedestrian infrastructure projects with other town projects and activities to increase safety and mobility while saving money.

How was this plan developed?

The Bicycle and Pedestrian Plan was developed with the input of existing advisory boards, community members, and town staff. This year long process included two community surveys and multiple public meetings and workshops.

What is biking and walking in Burgaw like now?

In general, the Town of Burgaw, especially the central area, is walkable. However, not all sectors of the population have equal access to the town's infrastructure and not all areas of town are safe for pedestrians. The town has little infrastructure for bicyclists, and several streets have conditions unsafe for cycling.

High Priority	1. Sidewalk from downtown to the hospital along Fremont 2. Shared lane markings on busy roads 3. Safe Routes to School Activities 4. Bicycle boulevards around downtown 5. West Side Trail & Parks project 6. Hold Bicycle Rodeos 7. Walking Field Trips 8. Increased lane & shoulder width on Penderlea Hwy 9. Install bike racks downtown 10. Family Bicycling Day
Medium Priority	11. Sidewalk along W. Clark connecting Burgaw Middle with Pender Memorial Park 12. Install bike racks on town properties 13. Connect sidewalk on E. Bridgers to Osgood Canal Greenway & Trail 14. Install trigger for flashing lights at crosswalk at Timberly & Hwy 53 15. Senior Mobility Program 16. Marketing Program 17. Expand and market Burgaw Trailblazers 18. Narrow travel lanes and add crosswalks on W. Wilmington St. 19. Public Education Campaign 20. Sidewalk between Dickerson and Smith on Fremont
Low Priority	21. Walk & Bike to Work weeks/days 22. Sidewalk along S. Smith St. 23. Walking Storybooks or other trail amenities 24. Hold Trailblazers Team Challenge annually 25. Greenway Ambassadors program 26. Widen Hwy 53 between Hwy 117 and Stag Park 27. Sidewalk along Hwy 53 from Timberly to Hwy 117 Bypass 28. Construct trail along Osgood Canal/Burgaw Creek and sidewalk down Timberly 29. Burgaw Mike Month 30. Bike rack incentives

What are the town's vision and goals for walking and biking?

The Town of Burgaw envisions a healthy, active community where it is easy and safe for all residents and visitors to access neighborhoods, shopping, services, schools, employment, and recreation by foot or bicycle.

In order to achieve this vision, the town has established the following goals:

- To provide a comprehensive bicycle and pedestrian network that connects residents and visitors to important destinations,
- To ensure adequate maintenance of all bicycle and pedestrian infrastructure,
- To increase the number of residents who bike and walk for recreational and transportation purposes, and
- To improve the safety of the bicycle and pedestrian modes of transportation.

What will we do to achieve this?

Community members prioritized a list of thirty recommendations that had been developed based on input from community meetings, technical advice, and plan scope. High and medium priorities are the most likely to be achieved in the time frame of the project, but lower priority projects may be implemented if funding and capacity becomes available.

Where do we go from here?

Not all of the recommendations prioritized during the planning process will be able to be implemented in the time frame of this plan. Funding and staff capacity are two of the most important factors in determining when and if particular projects will be completed. Some projects are more appropriate for town funding; others can be funded through federal, state, or grant sources. Recommendations can also be grouped in order to leverage funding.

The following implementation plan is based on the priorities of the community but takes into account time, funding, and capacity constraints. This implementation plan will need to be revised as funding decisions are made and staff capacity changes; however, this plan will direct the work activities of town staff over the next 5-10 years. In order to monitor progress, a report will be prepared each year outlining the implementation and outcomes of the plan.

Phase 1: Preparation	Phase 2: Program Development	Phase 3: Program Expansion	Phase 4: Evaluation
Submit construction and roadway improvement projects to NCDOT for funding Prioritize shared lane markings and bicycle boulevards in town capital improvement process Budget for engineering estimates Start West Side Trail & Parks project Develop Safe Routes to School partnerships Establish standards for sidewalks for new development Apply for PARTF funding Designate funding for system maintenance	Develop construction and improvement projects as funded Develop complete streets policy Streamline process of reporting safety concerns and maintenance needs Regularly maintain sidewalk and bike system Enforce safety violations by drivers, bicyclists, and pedestrians Work with partners on Safe Routes to School, Walking Field Trips, Burgaw Trailblazers, Family Bicycling Day (including Bicycle Rodeo), and walking and biking maps Develop downtown bike rack plan Install bike racks at all town properties	Develop construction and improvement projects as funded Regularly maintain sidewalk and bike system Enforce safety violations by drivers, bicyclists, and pedestrians Work with partners on Safe Routes to School, Walking Field Trips, Burgaw Trailblazers, and Family Bicycling Day (including Bicycle Rodeo) Develop or expand Senior Mobility Program, marketing program for visitors, and Public Education Campaign	Develop construction and improvement projects as funded Regularly maintain sidewalk and bike system Enforce safety violations by drivers, bicyclists, and pedestrians Work with partners on Safe Routes to School, Walking Field Trips, Burgaw Trailblazers, and Family Bicycling Day (including Bicycle Rodeo), Senior Mobility Program, Public Education Campaign, and marketing program for visitors Begin updating Bicycle and Pedestrian Plan based on achievements of previous 8 years

Introduction

Transportation has played an important role in shaping the built environment, economic development, and community life of the Town of Burgaw. A stop on the Wilmington and Weldon rail line, the town's original street grid was laid out by an engineer employed by the railroad. Roads accommodated pedestrian traffic and allowed for movement of horses and horse-drawn wagons. Downtown Burgaw, with its proximity to the railroad depot, served as the primary economic and cultural center of town.

Over the course of the twentieth century, however, automobile travel became the most significant form of transportation—both for moving goods and people. New streets were built to provide adequate capacity for the growing amount of freight and personal automobile traffic, new businesses chose to locate along the highways that moved people through town, and residents began to rely on automobiles for access to jobs, shopping, and recreation.

As time went on, the automobile-centered development patterns and transportation networks began to negatively affect the public health, safety, and general welfare of residents. Highways moved traffic through town at speeds that made walking and biking dangerous, residents were compelled to travel by automobile to meet their everyday needs, and neighborhoods became more isolated.

Since 2000, the Town of Burgaw has increased efforts to mitigate the negative effects of auto-centered development while supporting the efficiency of the existing traffic network. A major component of this work is strengthening the pedestrian network. New infrastructure is needed, however, for pedestrian and bicycle modes of transportation. Many of Burgaw's citizens now walk and bike for fun and exercise, but a portion of the population also uses these modes as their primary form of transportation.

“Over time...the demand for transportation services has changed, and [an] auto-only focus has had unintended consequences for communities, for those needing or wanting to use other transportation modes, and even for motorists.”

NCDOT Complete Streets Planning and Design Guidelines (2012)

General Public Interest Purposes

The Town of Burgaw understands the importance of its transportation system in maintaining the quality of life of its residents and attracting visitors, new businesses, and industry. It is the town's goal to create and maintain a comprehensive transportation network that will ensure the safe and efficient movement of people and goods, regardless of mode of travel; provide appropriate access to employment, housing, services, and recreation; and reduce the need of residents to rely on automobile travel. In addition, the town recognizes the importance of transportation systems in encouraging physical activity, promoting healthy living, and reducing the risk of chronic illness. A safe and comprehensive bicycle and pedestrian transportation network will increase the public health, safety, and general welfare of the town's residents.

Relationship with Other Plans

The **Burgaw 2030 Comprehensive Land Use Plan**, adopted in 2013, established as one of its primary transportation goals to increase the use and effectiveness of alternative transportation modes, such as walking and biking. To accomplish this goal, the plan outlined the following policies:

- Provide an interconnected street and circulation system to support a mix of alternative modes of transportation and provide alternative routes for bicyclists, pedestrians, and drivers;
- Review all new development and redevelopment proposals for compliance with adopted pedestrian and bicycle plans;
- Encourage pedestrian, bicycle, and multi-use paths as alternatives to street connectivity within subdivisions if street connectivity is not possible or desirable; and
- Include pedestrian and bicycle accommodations as an integral element of all transportation-related capital projects and programs when feasible.

Before these policies can be fully implemented, a prioritized pedestrian and bicycle circulation plan outlining transportation networks is necessary.

The Burgaw 2030 Plan also included portions of the **Pender County Comprehensive Transportation Plan**, which focused on roads on the state highway system that fall under the responsibility of the North Carolina Department of Transportation (NCDOT) and the **NC 53 Corridor Study**, which was adopted by the town in 2006. The bicycle and pedestrian improvement recommendations of these plans are incorporated into this plan.

Benefits of Walking and Biking

One of the reasons bicycle and pedestrian transportation is becoming more important in the twenty-first century is the relationship between transportation modes and public health. In addition, as Burgaw's history attests to, transportation networks have a large impact on both quality of life and economic development within a community.

Health Benefits

Both walking and biking provide important health benefits for residents. Increasing one's level of physical activity has been shown to reduce risk for obesity and chronic illnesses. Walking or biking for transportation reasons is one way most people are able to increase their level of physical activity. In addition, just being outdoors can increase vitamin D levels, elevate mood, boost concentration, and increase healing rates.¹

Economic Benefits

While many of the economic benefits of walking and biking are tied to the effects of better health, encouraging bicycle and pedestrian transportation can also benefit local businesses. Customers who travel by car often attempt to park as close as possible to the store they are visiting, reducing the effectiveness of window displays and other inexpensive forms of

¹ "A Prescription for Better Health: Go Alfresco." *Harvard Health Publications*. Harvard Medical School, 01 July 2010. Web. 31 March 2015.

advertising. In addition, walkability of business districts has been shown to be associated with greater financial returns.²

Safe and efficient bicycle and pedestrian networks also provide an economic benefit to residents. The ability to access jobs, services, and recreation by foot or bicycle can reduce the costs residents pay for car ownership, potentially increasing both wealth and expendable income.

Environmental Improvements

The primary environmental benefit of increasing levels of bicycle and pedestrian transportation is a resulting decrease in air pollution levels, especially for short trips. According to the Federal Highway Administration (FHA), short trips contribute more air pollution per mile than longer trips due to engine temperature.³

Transportation Benefits

Increasing bicycle and pedestrian modes of transportation, especially for short trips, can alleviate road and highway congestion. NCDOT projections find that by 2040, many of Burgaw's state roads will be at or over capacity. By encouraging residents to walk or ride a bicycle instead of driving, the town's existing infrastructure will function more efficiently, and expensive upgrades may not be required.

Quality of Life

In general, safe and efficient bicycle and pedestrian networks are important to resident quality of life, both because they provide an alternative transportation mode and additional recreational opportunities. Participants in the Burgaw 2030 Comprehensive Land Use Plan's Parks and Recreation focus group also indicated that an expanded sidewalk system and greater pedestrian friendliness is a major need for recreational purposes. In addition, high-quality bicycle and pedestrian networks allow residents who are unable to drive to participate more fully in community life. Walkers and bikers are able to interact with a larger number of people, contributing to community cohesion.

Purpose and Scope of Plan

Over the past decade, the town has increased investment in pedestrian and multi-use infrastructure. However, as the town's demographics change and infrastructure needs grow, the town needs a plan on how to implement bicycle and pedestrian amenities in a cost-effective and strategic manner. At their 2014 strategic planning session, the Board of Commissioners directed staff to begin work on a town-wide bicycle and pedestrian plan. The Board had received requests from residents for more and safer walking and biking amenities. Because funding for these projects is limited, the Bicycle and Pedestrian Plan is intended to outline community priorities so the town can coordinate bicycle and pedestrian infrastructure projects with road maintenance projects in an effort to increase safety and mobility while saving money. The plan's objectives are to both determine short- and medium-term priorities for implementation and provide a comprehensive list of strategies that can be implemented as opportunities (road paving, new development, etc.) arise. The plan will also recommend development ordinance

² "Paved with Gold: The Real Value of Good Street Design." *CABE Space*. Commission for Architecture and the Built Environment. 2007. Web. 31 March 2015.

³ "Transportation Air Quality: Selected Facts and Figures." Federal Highway Administration, January 2006. Web. 23 June 2015.

amendments to ensure a cohesive transportation network and will outline implementation tools and funding methods.

Planning Process

The Town of Burgaw Planning Board served as the steering committee for the Bicycle and Pedestrian Plan, and town planning staff managed the planning process. Because of the number of stakeholders in bicycle and pedestrian issues the planning process was designed to include at every step review by technical advisors and input from residents and other members of the community. In addition, the town's Parks and Recreation committee, a citizen advisory board tasked with recommended parks and recreation projects and programs to the Board of Commissioners was regularly updated on the plan's progression and provided feedback on potential recommendations and the draft plan. The Infrastructure Board, a subcommittee of the Board of Commissioners, that makes recommendations on infrastructure projects to the full Board, also reviewed proposed recommendations and the draft implementation plan.



Committee Participations

The following individuals participated on committees during the planning process. Some groups participated throughout the planning process, while other were brought in for specific reasons and a particular phase.

Steering Committee	Phase of Participation	Individual	Group Represented
Steering Committee	Project Kick-Off Information Gathering Recommendation Development Final Plan Development	Barry Klingel Jennifer Hansen Louis Davis Meg Franklin Connie Ives Jeff Rooks William Smith	Planning Board
Technical Advisory Committee	Information Gathering Recommendation Development	George Eckart Jennifer Hansen Allen Serkin Dee Turner	NCDOT Planning Board Cape Fear RPO Pender County Parks & Recreation
Focus Group	Information Gathering	Courtney Donathan Val Donathan Karen Harding Louis Hesse Tina Lewis Richard Mantooth Judith Pelly Katrin Rahe	Community
Parks & Recreation Committee	Information Gathering Recommendation Development Final Plan Development	Dayna Corcoran Noah Harrell Vernon Harrell Bill King Pete Summers	Committee Members
Infrastructure Board	Recommendation Development Final Plan Development	Charles Rooks Elaine Tyson	Town Commissioners

Public Involvement

The public participated actively in the information-gathering, recommendation development, and final plan development phases of the planning process.

Information Gathering. Area citizens, business owners, and organizational representatives were invited to participate in a general survey in spring 2014. The information gathered from that survey was used to develop the topics of conversation posed to a self-selected focus group of local residents interested in bicycle and pedestrian transportation. Planning staff held a drop-in

workshop targeted to the town's youth at the local branch of the Pender County library to ensure representatives of that demographic had an opportunity to provide input.

Recommendation Forming. An open house was held in January 2015 to present the background data that had been gathered to the public. Attendees suggested potential recommendations and projects based on this information and their personal experience.

Final Plan Development. After the steering committee, technical advisory committee, Parks and Recreation Committee, and Infrastructure Board had narrowed down the potential plan recommendations, the community prioritized all recommendations.

Existing Conditions

In general, the Town of Burgaw, especially the central area, is walkable. However, not all sectors of the population have equal access to the town's infrastructure and not all areas of town are safe for pedestrians. The town has little infrastructure for bicyclists, and several streets have conditions unsafe for cycling.

Community Profile

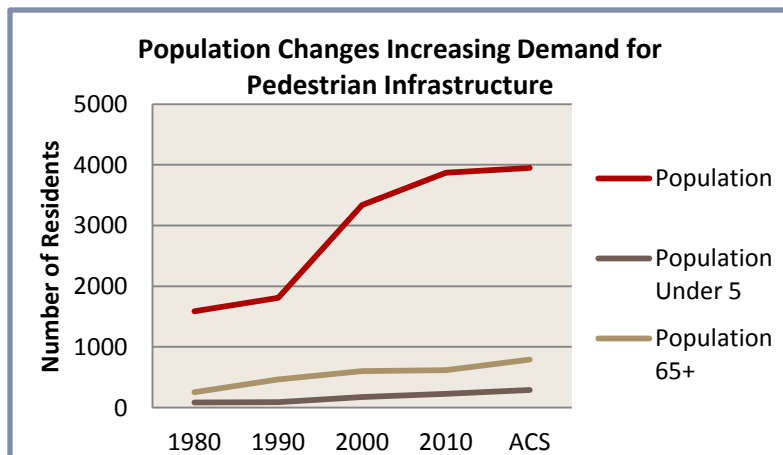
Demographics

The demand for pedestrian and bicycle infrastructure in Burgaw has grown over the past few years. Based on the town's changing demographics, this demand is likely to increase, especially for recreational purposes and access to goods and services. Pedestrian transportation needs will likely continue to be most prevalent, but bicycle infrastructure will contribute to the town's attractiveness to younger residents.

Over the past 25 years, Burgaw has grown 124% to a 2013 estimated population of 4,049. While a large percentage increase, the town's population has grown slowly compared with Pender County as a whole.

The composition of the town's population has also shifted over the past three decades. In 1980, the population was comprised of almost equal portions of middle adults (25-54), older adults (55+), and children (under the age of 18). Over the course of the next decade, the number of young residents (24 and under) shrank, and the median age of the town grew from 35.3 to 40.7.

The median age of the population is currently very similar to the 1990 numbers, with a 2010 census median age of 39.5 and an Annual Community Survey (ACS) estimate of 41.1 for 2009-2013. This can be largely attributed to shrinking percentages of children and young adults, though the percentage of children 14 and under has grown since the 2010 census, with the largest increase for children under the age of 5.



Studies have found that young people between the ages of 5 and 15 and adults 65 and older are the most likely to walk for transportation purposes (other than commuting) and recreation.⁴ **The rising numbers of young children under 5 and the growing older population indicate that the demand for walking infrastructure will grow, especially infrastructure that increases the safety of pedestrian travel.**

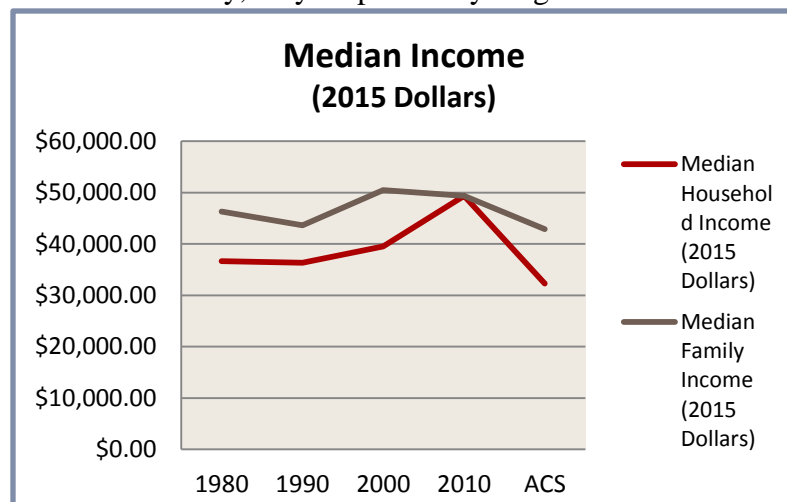
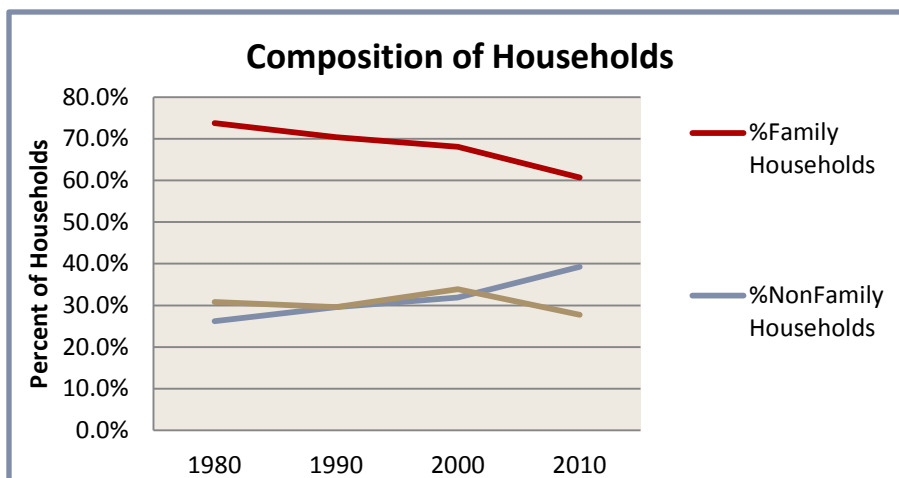
In general, the town's population has begun to shift away from family households, especially those with children. The percentage of one-person households has increased for both adults 65+ and younger adults, and the percentage of "roommate" households (non-family households of more than one person) has increased almost ten times since 1990 and almost two times since 2000.

According to the U.S. Census Bureau, persons in households without children are more likely to walk or bike to commute.⁵

The increasing percentage of

households without children may increase the demand of pedestrian and bicycle

infrastructure for commuting. In addition, while the percentage of young adults in Burgaw has been shrinking, providing additional infrastructure for bicycling, which is the most popular transportation mode for millennials according to a 2013 American Public Transportation Association study, may help attract younger residents to the town.⁶



Income & Education

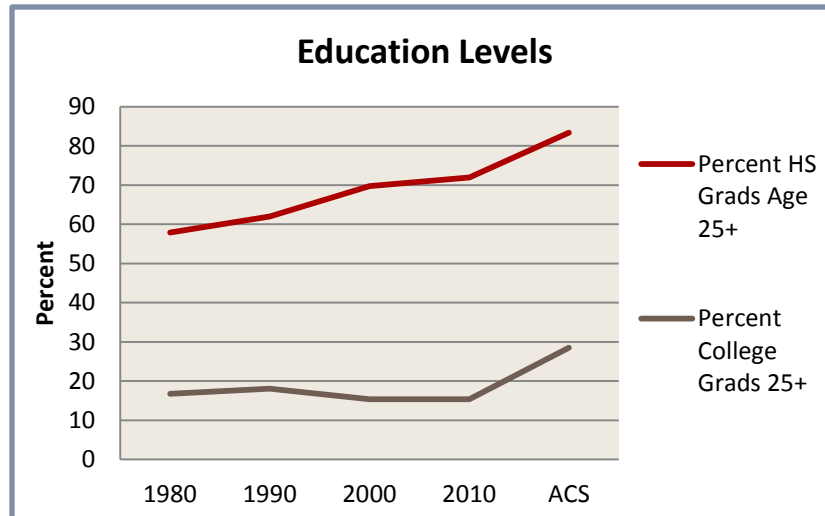
After enjoying an increase in household income and reduction in poverty levels through the 2000s, the 2009-2013 ACS indicates that Burgaw's residents have less disposable income today. **Households with less income are the most likely to walk or bicycle for transportation purposes, indicating there is a greater need for pedestrian and bicycle**

⁴ "Who's Walking and Biking." *Pedestrian and Bicycle Information Center*. UNC Highway Safety Research Center. Web. 8 May 2015.

⁵ McKenzie, Brian. "Modes Less Traveled—Bicycling and Walking to Work in the United States: 2008-2012." *American Community Survey Reports*. United States Census Bureau. May 2014. Web. 5 May 2015.

⁶ "Millennials & Mobility: Understanding the Millennial Mindset." *American Public Transportation Association*. 2013. Web. 8 May 2015.

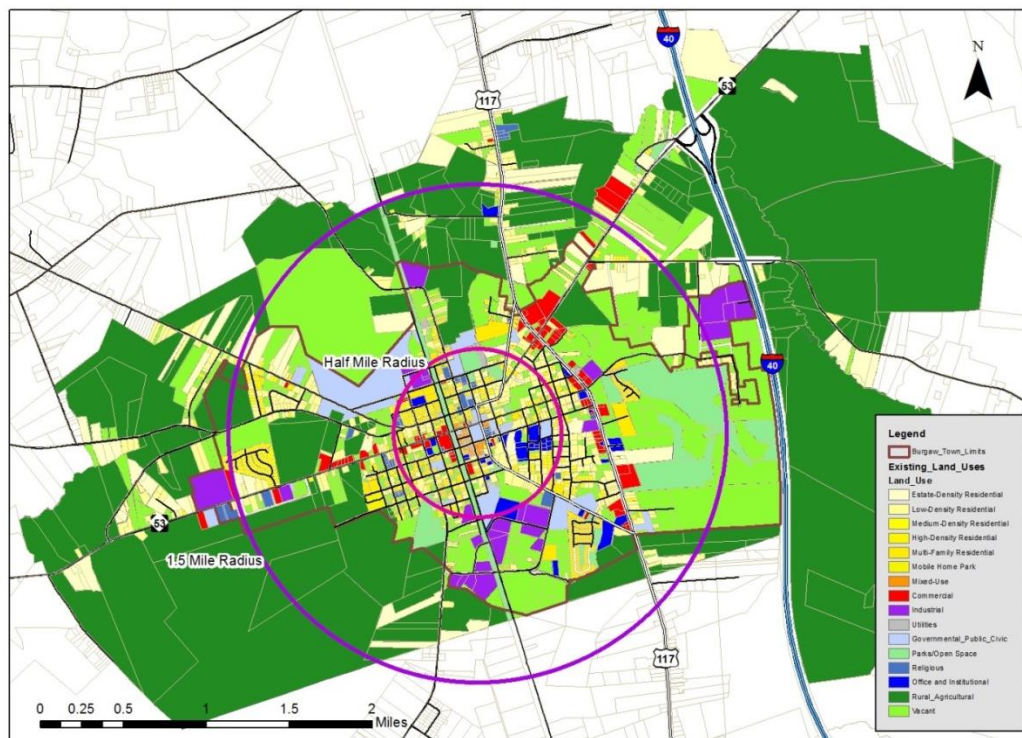
infrastructure to support the transportation needs of the less affluent residents of the town.



While Burgaw's residents have less income, they are attaining greater levels of education—a trend that the ACS indicates has occurred since 2010. The percentage of college graduates has almost doubled since 2010. **Since the most and least educated are most likely to walk and bicycle for transportation, this also strengthens the likely demand for more pedestrian and bicycle infrastructure.**⁷

Land Use

According to a 2009 survey of existing land uses, residential uses make up the majority of developed land within the town's corporate limits. Most residences are centralized and located



in the area surrounding the historic downtown; however, many residential tracts are also located on the outskirts of town along major highways. Commercial uses are primarily concentrated within the town's central business district and along US

Highway 117 Bypass. Office and institutional uses are generally located in the central business district, along E. Fremont St., and along S. Walker St. Industrial areas are located on the

⁷ McKenzie, "Modes Less Traveled."

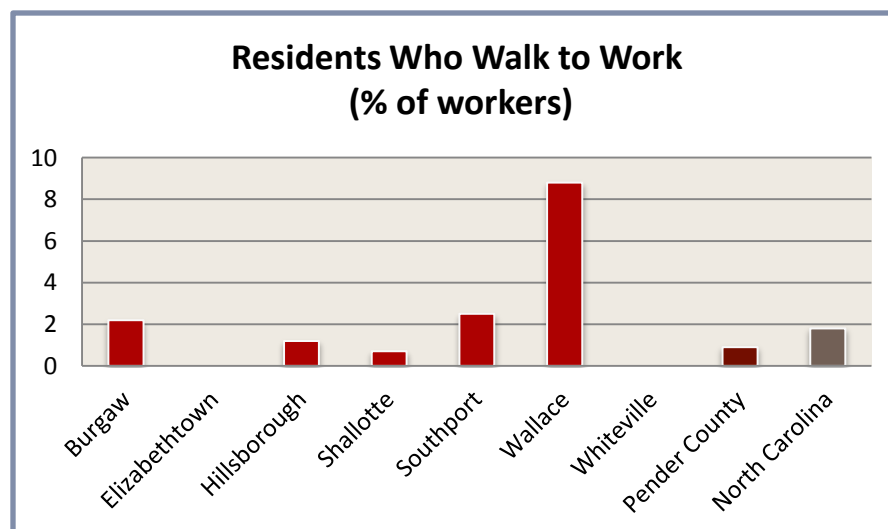
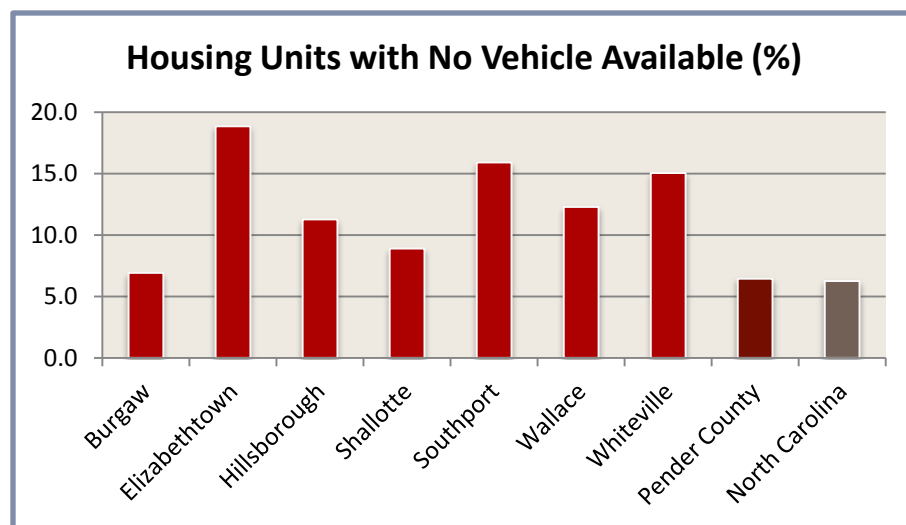
western, southern, and northeastern outskirts of town. Over a quarter of the land within the town's corporate limits is currently vacant.

Based on the town's current land use patterns, shown above, a large portion of the town's residential areas (shown in yellow) are within a half-mile radius to the center of town, meaning that they are within a half mile (10 minute) walking trip to downtown. Almost all the town's residential areas are within three miles of almost all the commercial and industrial areas of town, a distance appropriate for bicycle travel.

While the size of the town contributes to a decreased distance between destinations, the town has historically segregated land uses, which can lead to increased travel times and decreased pedestrian or bicycle transportation. Over the past several years, in part due to the recommendations of the Burgaw 2030 Comprehensive Land Use Plan, the town has begun to allow and even encourage more mixed-use development.

Transportation

The most common form of transportation for the residents of Burgaw is the personal automobile. According to survey respondents, 99% had access to a vehicle, but the survey respondents are not reflective of the whole community. According to the 2010 Census, 6.9% of occupied housing units had no vehicle available, which is in line with Pender County and North Carolina as a whole. This percentage is down from 12.9% in 2000.



Walking was the next most common mode of transportation. Nearly 60% of survey respondents had walked as a form of transportation in the previous year. One-third of participants in the drop-in workshop walked for transportation daily, with over half (55.5%) walking "sometimes."

The percentage of

residents walking to commute to work appears to be growing. According to the 2010 Census, 2.2% of workers walked to work in Burgaw. This percentage is higher than Pender County, North Carolina, and all comparison municipalities except for Southport and Wallace. This percentage has risen to 3.2% in the 2009-2013 ACS Estimates.

The Census did not report any Burgaw residents bicycling to work, but over three quarters of survey respondents reported having a bicycle, and 40% had bicycled in the past year. At the drop-in workshop, 88.9% of participants had a bicycle, approximately 20% bike daily, and almost half bike sometimes or regularly.

In general, more respondents walked and biked for recreation than for transportation. Studies have indicated that the general population would walk or bicycle more if the safety and convenience of those travel modes were increased.⁸

System Profile

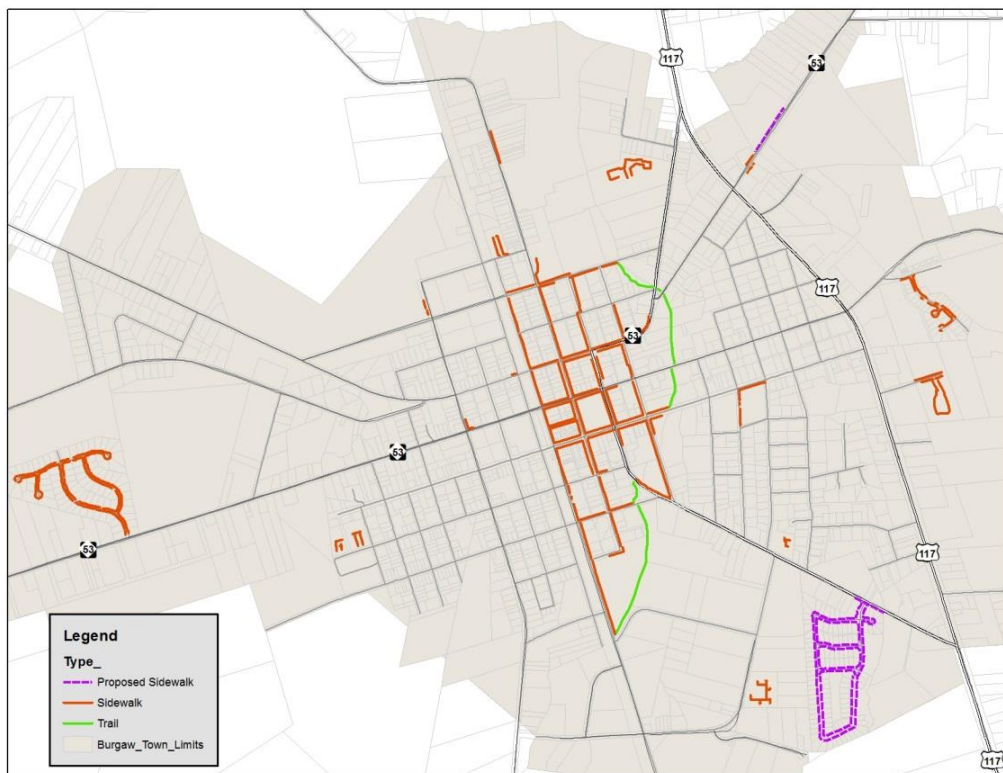
Existing Facilities

Sidewalk Network

The town's sidewalk infrastructure is located primarily in the areas adjacent to the central

business district and on the east side of the railroad right-of-way running through the center of town.

According to a 2009 sidewalk survey conducted by the Cape Fear Council of Governments (COG), the town had 37,082.2 total feet (7.01



miles) of sidewalk. Approximately eight blocks worth of sidewalk have been constructed since the 2009 survey, and the Board of Commissioners allocated a portion of the town's funds to repair of existing sidewalk for three consecutive budget years. According to the COG survey,

⁸ Frank, Lawrence D. and Peter Engelke. "How Land Use and Transportation Systems Impact Public Health: A Literature Review of the Relationship Between Physical Activity and Built Form. *Active Community Environments Initiative*. Center for Disease Control. Web. 2015 May 13.

the majority of the town's sidewalks are in good condition; however, portions of high traffic sidewalks contained some trip hazards for pedestrians. Many of these hazards have been mitigated through the town's repair efforts since 2009.

The majority of sidewalks within the town are 4 feet in width (45%) and 5 feet in width (42%). North Carolina Department of Transportation specifications currently require five-foot widths for sidewalks built adjacent to their roadways.

Bicycle Network

While some town residents currently use sidewalks for bicycle traffic, bicycles are prohibited from using downtown sidewalks other than those on the Osgood Canal Greenway and Trail. There are currently no bicycle lanes, share-the-road markings (sharrows), or designated bicycle routes in Burgaw's planning jurisdiction.

Multi-Use Paths

The Osgood Canal Greenway and Trail includes off-road trails intended for bicycle and pedestrian use. One off-road portion of the trail runs from E. Ashe St. to E. Fremont St. Another portion of trail connects E. Hayes St. and S. Dickerson St. In addition, the sidewalk portion of the Greenway and Trail has been officially designated for bicycle use.

Intersections

The majority of intersections are not marked with crosswalks. All street crossings associated with the Osgood Canal Greenway and Trail are marked, along with several intersections in the downtown commercial area.



Most intersections do have ADA compliant truncated domes on curb ramps; however, not all curb ramps are aligned with the crosswalk (marked or not), and some are not aligned with each other. In other cases, a curb ramp may be on one side of the street while no ramp exists on

the other side of the street.

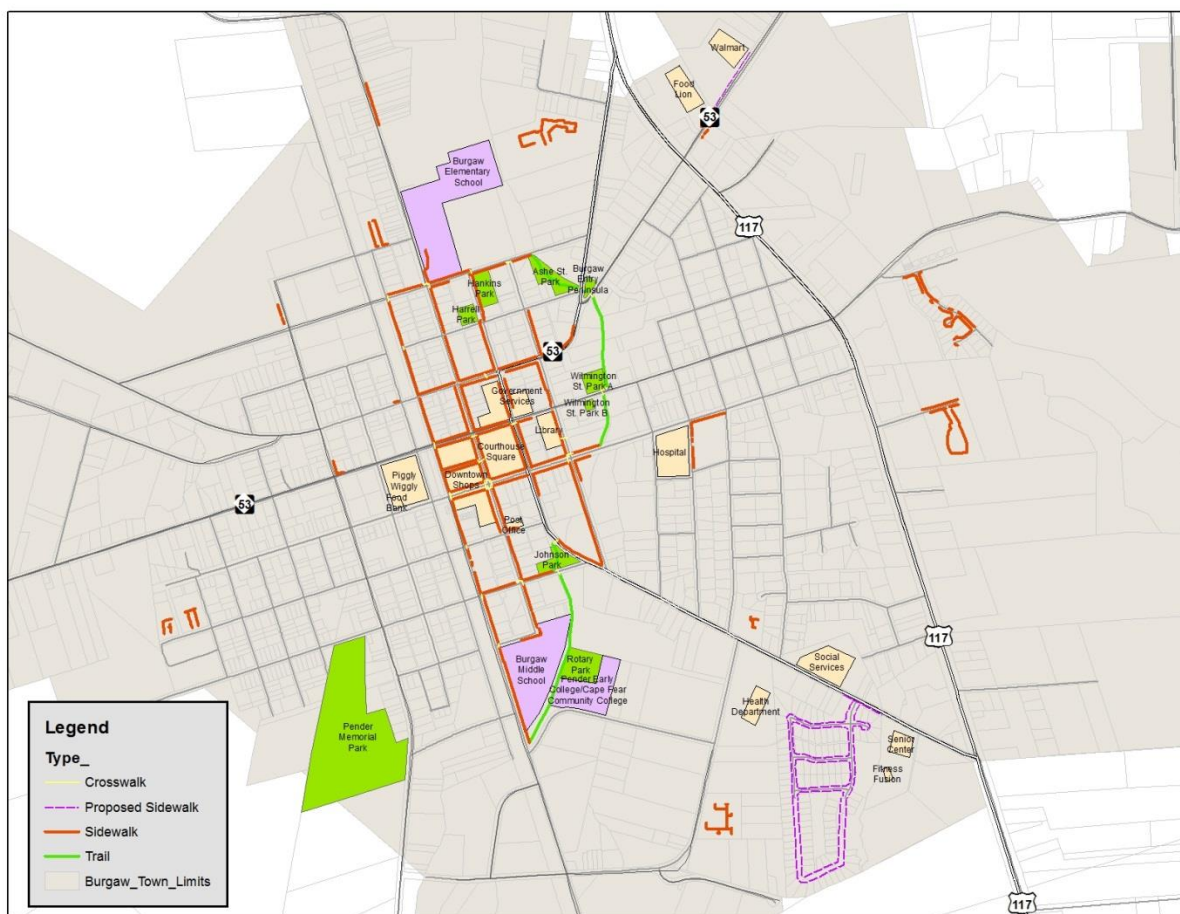
Curb ramps are important because they allow people who use wheelchairs to access the streets and sidewalks. Truncated domes are required to be paired with curb ramps to maximize

detectability for people with visual impairments who would otherwise rely on curbing to identify the transition between the sidewalk and the street.

Ramps may be oriented diagonally or perpendicular to the existing sidewalk. Both types of orientation have advantages and disadvantages. In general, diagonally-oriented curb ramps are less expensive as there is generally only one per corner, but they may provide no alignment with the proper crossing direction. In addition, it may be more difficult for wheelchair users to make the transition from crosswalk to sidewalk if the ramp is at an angle. Burgaw has both types of curb ramps. In some cases, slightly diagonal ramps have been installed to ensure alignment with marked and unmarked crosswalks, especially in cases where a street is wider on one side of the intersection than the other.

Destinations/Destination Areas

With the help of the community focus group, planning department staff has identified twenty-four major trip attractors throughout the town. The most common destinations and destination areas include commercial areas, government and social services, and health care. In the center of town, residents can access the Pender County Courthouse and Annex, Town of Burgaw government offices, the downtown shopping district, one of the local grocery stores, a food bank, the post office, and the hospital. County government offices, including the Health Department and Department of Social Services, are located on S. Walker St. near Pender Adult Services and



local gym Fitness Fusion. The other large grocery store and Walmart are located at the intersection of Highway 53 and Highway 117.

According to Pender Adult Services Transportation data, the service offered in Burgaw that triggers the most rides is nutrition services, which is provided at the Senior Center and two food banks. A portion of those riders are nonambulatory and/or disabled. Frequent trips are also made to dialysis and the hospital using public transportation, but many of those riders would be less likely to use bicycle and pedestrian modes of transportation to access other Burgaw destinations.

Burgaw Elementary School, Burgaw Middle School, Pender Early College High School, and Cape Fear Community College's Burgaw campus are all located within the Burgaw corporate limits. The elementary school is on the north of town, and the middle school is seven blocks to the south. The early college occupies part of the community college's campus and is located behind the middle school along Industrial Drive.

According to data from the 2013-2014 school year, public school buses picked up over 182 students within a one-mile radius of one or all of the local schools.

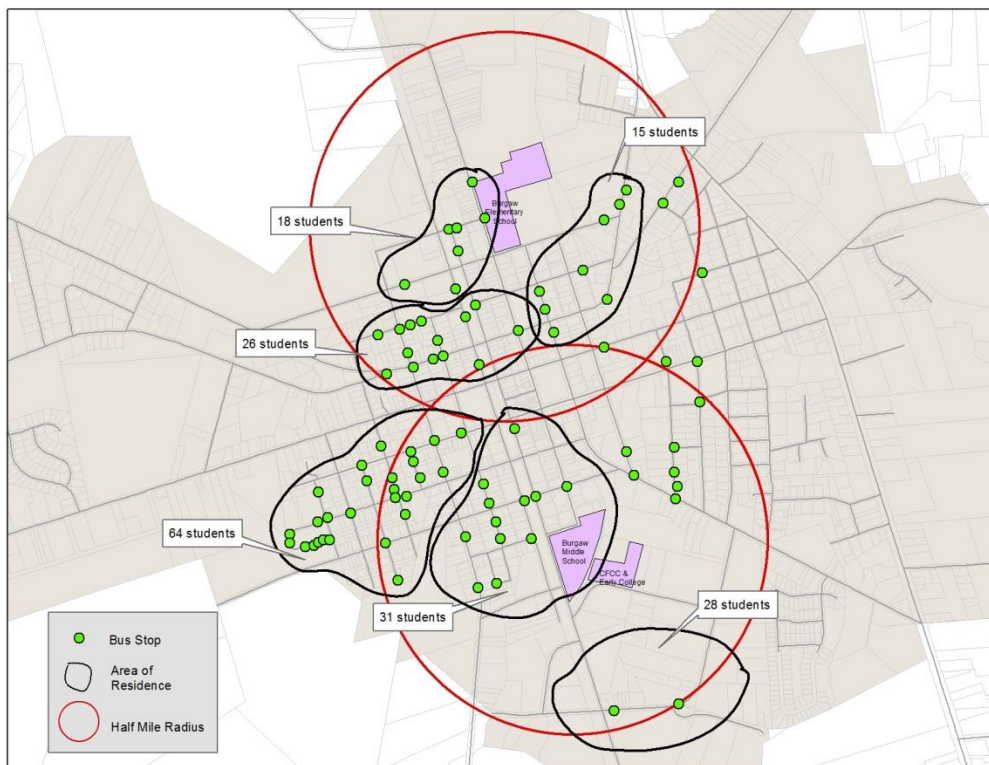
The Osgood Canal Greenway and Trail links eight pocket and neighborhood parks, all located on the

east side of the railroad right-of-way. Pender Memorial Park, which consists of ball fields and a playground, is located on the southwest portion of town.

The majority of trip attractors within the town are contained within a half-mile radius of downtown; all trip attractors are within one-mile of downtown, and the entire corporate limits of Burgaw is within a two-mile radius of downtown.

Planned Facilities and Projects

Two major bicycle and pedestrian projects have already been approved by the Board of Commissioners, have had engineering work completed, have had some funding success, and are shovel-ready. A portion of the infrastructure recommendations of the NC 53 Corridor Study, the



Walker and Wilmington Streets roundabout project was included on the most recent North Carolina Department of Transportation's Transportation Improvement Plan (TIP). This project is slated to receive funding and be constructed within the next five years. However, since engineering is completed and right-of-way has already been acquired, this project is ready to be constructed if funding becomes available before then. The project will include improved pedestrian crossings at this major intersection of Highway 53 and Highway 117 Business.



A sidewalk along Walker St. from the post office to the Senior Center has also been approved and engineered. The town has requested discretionary funding for the local state legislative delegation and has had some success in

securing funding commitments. This project is ready for construction as soon as funding is available. This project will address a major concern and need that has been reiterated by the public throughout the bicycle and pedestrian planning process.

Additional facilities and projects have also been authorized by the Board of Commissioners. At their 2014 strategic planning session, the Board approved a planning project, the West Side Trail and Parks Project, to plan for a system of sidewalks, trails, and pocket parks that would mirror the Osgood Canal Trail on the west side of the railroad right-of-way. This project would provide transportation benefits to residents where there is little existing bicycle or pedestrian infrastructure. It will also expand on the popular Osgood Canal Greenway and Trail, allowing residents a greater variety of length and location in recreation options.

In addition, the Board approved a request from Pender County Library requesting the extension of the sidewalk along Cripple Creek to the intersection of Cowan and Wilmington Streets. The requested project would involve approximately 250 feet of sidewalk and would present several challenges due to right-of-way and site constraints. The Board determined that the project could be completed if the County had the area surveyed, provided the town with an easement for the sidewalk, and funded 50% of project costs.

Existing Programs and Resources

Safety, Education, and Enforcement Programs

The Town of Burgaw currently offers no explicit pedestrian or bicycle safety, education, or enforcement programs. The state's Safe Routes to School program does offer some safety and education workshops that Burgaw Middle School has used. In addition, the Pender County Health Department has expressed interest in working with the town to hold education events.

Planning, Development, and Maintenance Capacity

A subcommittee of the Board of Commissioners, the Infrastructure Board, plays a large role in coordinating transportation and infrastructure planning and maintenance, working with the planning and public works departments.

The planning department is comprised of the planning administrator, planning technician (shared with building inspections), and public administration fellow (shared with public works and administration). The planning administrator works with NCDOT's Rural Planning Organization (RPO) and planning branch to plan improvements to the state system. Those projects must be prioritized through the NCDOT SPOT process. Most local transportation planning is led by the Board of Commissioners with the assistance of the town manager or is part of the major subdivision process. This plan is the first large-scale initiative for pedestrian and bicycle infrastructure. The Osgood Canal Greenway and Trail Project was planned through the planning department with technical assistance from a consultant.

The public works department is responsible for all maintenance of sidewalks, trails, and town streets. Currently, three public works employees are dedicated in part for transportation infrastructure maintenance. Construction of new infrastructure or other capital projects would be contracted out but must be regularly inspected by the public works director and/or assistant director.

Design and Engineering Standards

The Town of Burgaw Unified Development Ordinance includes sidewalk specifications only for new subdivisions. Sidewalks are required to be constructed to a minimum width of 4 feet and minimum thickness of 4 inches of concrete, except at driveways where the minimum thickness required is 6 inches. Wheelchair ramps are required at all intersections where both curb and gutter and sidewalks are provided and at other major points of pedestrian flow for all street curbs being constructed for maintenance procedures, traffic operations, repair, correction of utilities, or altered for any reason.

The public works department's standard specifications and details for concrete sidewalks requires a minimum width of 5 feet and includes standards for distance from the curb, expansion joints, and slope. The discrepancy between the width requirements of these standards and those of the development ordinance should be addressed.

In all other cases when sidewalks are required, the town defers to NCDOT standards, if applicable. There are no town requirements for bicycle infrastructure.

Barriers to Walking and Biking

Public Input Findings

Survey respondents and participants in the focus group and drop-in workshop provided input on the reasons why they chose not to walk or bicycle for transportation. Bad weather, the need to transport people or things, poor condition of infrastructure, and lack of connectivity were cited as the most common reasons why respondents and participants chose not to walk. The most common barriers for bicycling for short trips included the lack of bicycle facilities, unsafe drivers, and bad weather. Safety was one of the biggest barriers to walking and biking brought up by town citizens. Particular intersections and stretches of road were noted and will be discussed further in the next section. Citizens also identified lack of lighting, especially along the Osgood Canal Greenway and Trail, as safety concerns. Overall, the following were the major needs identified by public input:

- Gaps exist in the existing network;
- Some intersections are unsafe and not accessible by people in wheelchairs;
- Certain neighborhoods and areas of town are not linked to the existing network;
- Major highways are barriers;
- Education and awareness are needed to change driver behavior;
- Not all users feel safe walking and biking;
- Residents desire more recreational amenities, longer trails, etc.; and
- Existing infrastructure needs maintenance.

Safety Issues

While there are perceptions of a lack of bicycle and pedestrian safety, there have been few reported accidents for cyclists and walkers. For the years 1997 to 2012, NCDOT reports there have been four total pedestrian crashes, one in 2006 and three in 2012. Because of the small number of crashes, there is no clear indication of whether intersection-related or non-roadway areas are most dangerous. One of the reported crashes was intersection-related, two were non-roadway, and one was unknown. Non-roadway locations are typically parking lots according to NCDOT.

The pattern is more clear for bicycle crashes. Still a small number, there have been five bicycle crashes reported between 1997 and 2012, with a maximum of one per year. Three of those, however, have been at intersections. Another was intersection-related, and the last was non-intersection. NCDOT defines “intersection” crashes as those that occurred within the motor vehicle stop bars or pedestrian crosswalks and “intersection-related” as close enough that an intersection maneuver such as slowing traffic may have led to the crash.

Penderlea Hwy, a state-maintained minor collector road, was identified as dangerous for bicyclists. While the posted speed limits for this road are relatively low, 35 mph within the town's corporate limits and 45 mph in the ETJ, those speed limits are not always respected by automobile and truck traffic. In addition, only the travel lanes are paved and are only 10 feet wide (12-foot lanes are recommended for collector roads with Penderlea Hwy's traffic volume).⁹ The Pender County Comprehensive Transportation Plan (CTP) recommends a multi-use path adjacent to this road, but funding from NCDOT is not likely and the town would have maintenance responsibility.

State-maintained local road, Piney Woods Rd., which turns into Henry Brown Rd. and W. Bridgers St. as it comes into town, was identified as unsafe for both pedestrians and bicyclists due to speed and the amount of truck traffic. Its design is very similar to that of Penderlea Hwy, with ten-foot travel lanes and grassed shoulders. However, its speed limit in the ETJ is 55 mph, and the traffic volume is much less (only 1,300 trips per day). Not surprisingly, this area was deemed dangerous, but not as dangerous as Penderlea Hwy. No bicycle, pedestrian, or highway improvements were recommended in the Pender County CTP for this area.

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Area of Concern: NC Hwy 53 West

One of the major highways in Burgaw, NC Hwy 53's western portion (west of Smith St.) was cited as an area of safety concern for pedestrians and bicyclists, largely due to the heavy traffic. According to NCDOT's 2013 counts, it sees between 4,600 and 6,800 vehicles daily.¹⁰ The paved width of the roadway is under the recommended travel way for collector roads with that level of vehicles per day, with eleven-foot travel lanes instead of twelve-foot travel lanes. The shoulders are grassed, and speed limits vary from 35 mph closer to downtown to 45 mph to 55 mph in the ETJ. The Pender County CTP recommends an off-road multi-use path for this road outside of the town's corporate limits and on-road bike and sidewalks along the in-town portion.



Area of Concern: NC Hwy 53/Wilmington St.

The portion of NC Hwy 53/Wilmington St. from Smith St. to Walker St. was also cited as an area of safety concern for both pedestrians and bicyclists. There are sidewalks along both sides of the road east of the railroad right-of-way, but there is only one designated crosswalk (located at Wilmington and Dickerson streets).

While the portion of Hwy 53 West on the west side of Smith St. is 22-foot wide, the paved road surface almost doubles between Smith St. and McRae St., and this stretch of road has on-street parking in addition to 15-foot travel lanes. While this benefits on-road bicyclists, the wide road widths do encourage speeds in excess of the posted 35 mph limit and make pedestrian (and bicycle) crossings of this roadway more difficult.

This portion of road was included in the NC 53 Corridor Study, which recommended narrowing the travel lanes through a combination of landscaping and bulb-outs, designated crosswalks, and a landscaped median between Smith and McRae Streets. This plan would greatly increase the safety for pedestrians, but on-road bicycle travel would become more difficult.

¹⁰ Traffic counts were not performed for the portion of Hwy 53 West being discussed. Farther west, after the intersection with Henry Brown Rd., counts were 4,600. Farther east, between downtown and Smith St., counts were 6,800.

Area of Concern: Hwy 53/Walker St./E. Bridgers St. from Wilmington St. to Timberly Lane



While only covering three blocks, the roadway conditions of Hwy 53 vary greatly in this area. The portion of Hwy 53 that aligns with Walker St. is very wide, at 40 feet of pavement, but the roadway narrows to 24 feet after the highway turns and starts its alignment with E. Bridgers St. As it reaches Timberly Lane, the road begins to widen again to 28 feet of pavement.

There is no on-street parking in this area, so risks to bicyclists are

primarily due to high traffic counts (5,100-6,700 vehicles per day depending on the section) and intersections. The NC 53 Corridor Study has recommended intersection improvements at all three intersections. Two of those improvements are included in the roundabout project that has been slated for funding within the next five years on NCDOT's Transportation Improvement Project. Another roundabout is proposed for the intersection of Timberly and E. Bridgers St.

Those intersection improvements will solve most of the safety issues by pedestrians as well, providing bulb-outs and designated crosswalks to assist in crossing the street. However, additional sidewalk is needed in order to fill in gaps in this area, especially the gap between the sidewalk and Osgood Canal Greenway and Trail shown in the northeast section of this map.

Area of Concern: NC Hwy 53 between Timberly Lane and US Hwy 117

This portion of Hwy 53 between Timberly Lane and US Hwy 117 is again unsafe for bicyclists and pedestrians in large part due to a high volume of traffic (7,100 daily vehicle trips) and busy intersections. The roadway is wide enough to accommodate on-road bicycle traffic, but the high volume of vehicles and fast speeds, especially heading east, are limiting factors. The NC 53 Corridor Study recommends narrowing lanes and adding sidewalks but does not include the current left turn lane at the intersection with Hwy 117. When that was installed, NCDOT used most of the right of way for about half of this area of concern, limiting the ability to put in sidewalks without redevelopment or the purchase of additional right-of-way.



Figure 1: The trail crossing at Hwy 53 and Timberly as seen from the west.

The Osgood Canal Greenway and Trail crossing immediately east of the Timberly Lane intersection is also an area particularly highlighted as dangerous for bicyclists and pedestrians. High vehicle speeds, a wide roadway, and the turn conflicts at the intersection decrease the likelihood of drivers' awareness of the crossing. In addition, as shown in the photograph to the left, the signage can be difficult to see due to shadows caused by vegetation. Pedestrian warning signs have been installed to warn drivers travelling in both directions, but conflicts with trail users have continued to occur. No accidents have occurred at this crossing, but the safety risks have limited use of the trail in this area according to anecdotal reports.

Area of Concern: NC Hwy 53 between US Hwy 117 and Stag Park Rd.

This portion of Hwy 53 has been a focal point for new development, which has both exacerbated pre-existing safety issues as well as providing a potential mechanism for improving them. The portion of roadway adjacent to development is very wide, and this stretch of highway has high traffic counts (7,800 vehicle trips per day). As a result, road crossings and bicycle and pedestrian travel along the roadway are less safe. As development has occurred, additional roadway widening has been needed, and the amount and complexity of traffic has also increased. New developers have been required to install sidewalks, helping ease the safety concerns of pedestrians along at least the developed portion of this road section.

Area of Concern: E. Wilmington St.

Survey respondents listed Wilmington St. as a whole as one of the most dangerous for walking. This portion of Wilmington St. can be unsafe for pedestrians on the two blocks closest to Walker St. While the road has wide widths, it allows on-street parking and does not have sidewalks or a shoulder. As a result, on the portions of the street where cars are most likely to park, pedestrians have no place to walk except for the street.

Area of Concern: W. Bridgers St.

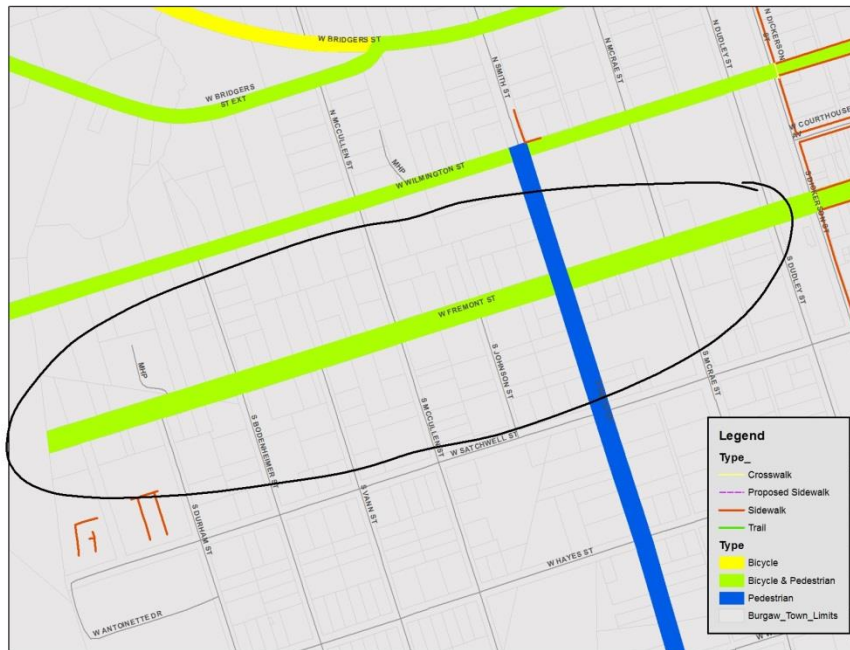
The section of W. Bridgers St. between the railroad right-of-way and its split from Penderlea Hwy. was identified as unsafe for both walkers and bicyclists. The block to the west of Smith St. is state-maintained, and the other two blocks are town-maintained. The paved roadway is 20 ft. in width, but this width is likely sufficient for the traffic volume and speed limit. No traffic count has been performed for this stretch, though. The shoulders are grassed and appear quite wide from an aerial view, but obstructions such as mailboxes



Figure 2: W Bridger St. as seen from east.

reduce the width available for pedestrians to use. In addition, the shoulders are in poor condition and subject to standing water. The narrow travel lanes and lack of usable shoulder contribute to the unsafe conditions in this area.

Area of Concern: W. Fremont St.



The whole of Fremont St., a town road running east to west town, was designated as an area unsafe for bicyclists and pedestrians. The portion to the west of the railroad right-of-way is unsafe in ways different from the rest of the street. The traffic in this area is generally lower, and the blocks west of Smith St. are very quiet. The roadway along those six blocks is quite narrow, at 20 ft. wide, and the southern shoulder contains a drainage ditch that constrains pedestrian

traffic, but the northern shoulder is wide with few obstructions. The primary safety issue for this portion of W. Fremont St. are the few street lights. Town policy (Resolution 2007-45) indicates there should be a street light at least every 500 ft., but there are fewer along this stretch. The Board of Commissioners recently approved changing the existing street light bulbs to LED bulbs, which should improve brightness of street lights, potentially reducing this safety concern.

Between Smith St. and the railroad right-of-way, the paved roadway widens considerably to 60 ft. in width while the right-of-way width stays the same, leading to smaller shoulders. This is not an issue for the block between Smith St. and McRae St., but between McRae and Dudley streets, angled parking begins, which inhibits both bicycle and pedestrian travel. There is no sidewalk along any portion of W. Fremont St.

Area of Concern: Fremont St. Downtown

Downtown Fremont St. (from the railroad right-of-way to Cowan St.) is unsafe for both bikers and pedestrians but for different reasons. The roadway is wide, but angled parking is permitted on both sides of the road, increasing safety concerns for cyclists. Pedestrians have access to sidewalks on both sides of the road and marked crosswalks at most intersections, but the angled parking limits sight lines and both pedestrians and drivers have been known to not follow the rules of the road in this area. Crosswalks are also not marked at the intersection of Fremont and Walker streets, a busy intersection.

Area of Concern: E. Fremont St.

This section of Fremont St. has three distinct portions, each with its own challenges for pedestrians and cyclists. From Cowan St. to US Hwy 117 Bypass, Fremont St. the paved roadway begins to narrow from 60 ft. to 32 ft., still a wide travel lane, to 22 ft. past the hospital.

The portion from Cowan St. to the hospital has wide travel lanes and some paved shoulder. However, the shoulder adjacent



Figure 3: E. Fremont St. at canal crossing, facing east.

to the canal (Area A on the map) is grassed and very narrow on the south side. The town has discussed the possibility of installing a sidewalk between downtown and the hospital for many years, but the culvert at this crossing would need to be improved for this to happen. That project is under consideration as part of the town's stormwater improvement plan and a widening of the shoulder in this area should be considered to lay the groundwork for a future sidewalk and to improve pedestrian access in the short term.

At 32 ft., the portion of E. Wilmington St. that runs from the hospital to Bickett St. is



Figure 4: E. Fremont St. close to intersection with Hwy 117 Bypass, facing west.

The final portion of street from Bickett to US Hwy 117 Bypass is narrower with grassed shoulders. The primary challenges for pedestrians along most of this stretch would be limited maintenance of the shoulders along undeveloped tracts. The block closest to Hwy 117 becomes much more unsafe, though, as the shoulder disappears into parking lots and the shoulders are obstructed (Area C).

Area of Concern: S. Smith St.

This state-maintained road is an important avenue into town from the south. Traffic in this area is not very heavy, 2013 counts show it at only 1,500 vehicles per day at its



Figure 5: Portion representative of shoulders on S. Smith St. West side is narrowed by drainage ditch and obstructed; east side is relatively wide and obstruction free.

southernmost point before it reaches any cross streets. This area has been identified as hazardous to pedestrians. The biggest challenge for pedestrian travel is intermittent narrow travel shoulders due to drainage ditches and obstructions caused by mailboxes. These narrow places occur on both sides of the road and do not correspond to any particular place on the road. The right-of-way is wide, so sidewalks can be constructed, but construction would likely require tiling of ditches.

Area of Concern: Wright St. and Walker St. at Courthouse Square

The two north-south avenues adjacent to the Courthouse Square were identified as being particularly unsafe for bicyclists. Wright St. has angled parking on both sides of the street, contributing to potential conflicts with bikers, and though Walker St. has parallel parking, the traffic in that section is heavier (2,900 vehicles per day). Both intersections with Hwy 53 are unsafe due to turning conflicts, and the Wright St./Hwy 53 intersection has limited visibility with traveling north.

Area of Concern: S. Walker St.

The safety issues on S. Walker St. have been a focal point of pedestrian and bicycle discussions over the past several years. This is the main link between downtown and the county offices and popular destinations such as the Senior Center and the Fitness Fusion gym.

Traffic is relatively heavy on this stretch of road (3,600 vehicle trips per day), and drivers tend to exceed the 35 mph speed limit. Along with speeding, a primary concern for safety along this corridor are based on the particular needs of its pedestrians. Many residents use Walker St. to access the health department and social services, often with children in strollers.

A sidewalk along the north side of the roadway has been engineered and approved by the town. Funding is currently being sought.

Area of Concern: US Hwy 117 Bypass

Traffic along this road is some of the heaviest in the town. Daily vehicle counts range from 3,700 just north of the intersection with Hwy 53 to 8,300 near its intersection with Fremont St. The paved roadway is very wide, at 45 ft., and includes a center turn lane along the length of the road. The grassed shoulders are wide as well, so the primary safety issues are related to the volume and speed of traffic. This road has a speed limit of 45 mph. Pedestrian crossings would be difficult due to the roadway width. The Pender Comprehensive Transportation Plan recommends a multi-use trail but does not specify which side of the road or intersection improvements.



Bicycle and Pedestrian Network Plan

Visions and Goals

To guide the recommendations of this plan, the Town of Burgaw establishes the following vision statement and goals:

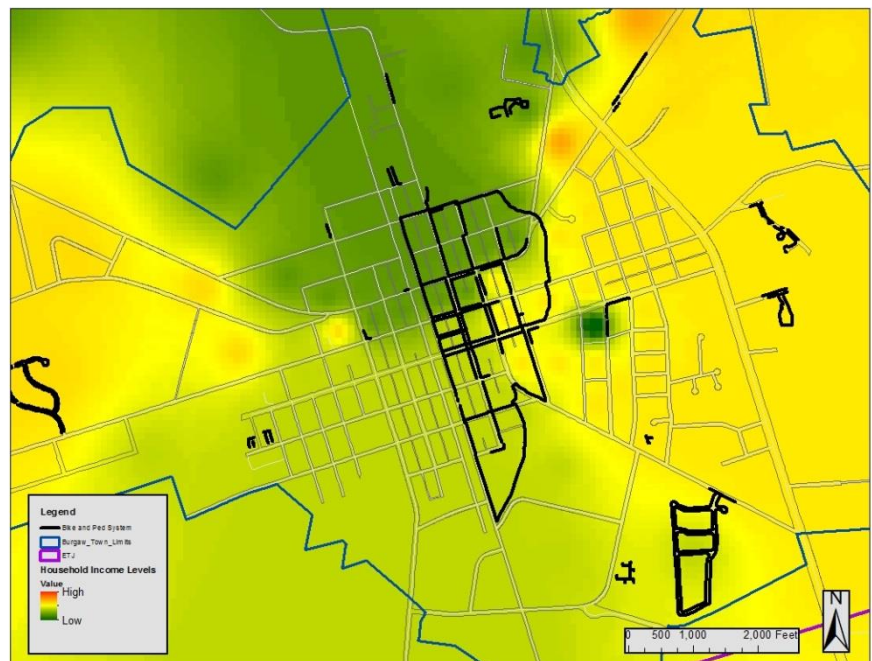
The Town of Burgaw envisions a healthy, active community where it is easy and safe for all residents and visitors to access neighborhoods, shopping, services, schools, employment, and recreation by foot or bicycle.

Goals

- To provide a comprehensive bicycle and pedestrian network that connects residents and visitors to important destinations
- To ensure adequate maintenance of all bicycle and pedestrian infrastructure
- To increase the number of residents who bike and walk for recreational and transportation purposes
- To improve the safety of the bicycle and pedestrian modes of transportation

Goal 1: To provide a comprehensive bicycle and pedestrian network that connects residents and visitors to important destinations

The first goal of this plan and its recommendations is to ensure that visitors and all town residents can access important destinations without having to drive. Currently, there are gaps in the existing sidewalk network, limiting the use of existing sidewalks. Some parts of town have no infrastructure. The residents of these areas are also most likely to have low incomes and be vulnerable to chronic disease.

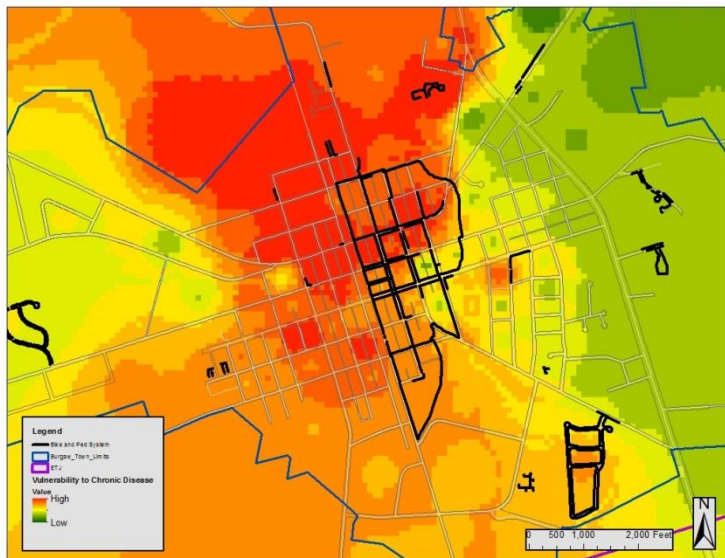


In the map to the right¹¹, the areas of town with lower incomes are shown in green. While many of the areas with existing

¹¹ All information regarding incomes is taken from the FOCUS Health Gap Analysis Data, compiled by Holland Consulting Planners.

infrastructure serve parts of this area, the lower income residents west of the railroad right-of-way have little to no infrastructure in place and no linkages to the existing sidewalk and trail network.

Residents who are vulnerable to chronic disease do not all have access to the existing bicycle and pedestrian infrastructure either. In general, the populations most vulnerable to chronic disease are older and have lower incomes, so many of the areas of town with higher levels of vulnerability coincide with the low income areas. While the portions of these populations already suffering from poor health may not be likely to use pedestrian or bicycle modes of transportation, the vulnerable population needs access to recreation and a more active lifestyle to prevent illness from occurring.



The map to the left shows the areas where the residents most vulnerable to chronic diseases live¹². The darker red the color of the area, the more likely the residents are to be vulnerable.

Objectives:

- A. Construct new sidewalks to fill in the gaps in the existing system
- B. Construct new sidewalks to connect destinations and neighborhoods to the existing system
- C. Provide appropriate bicycle infrastructure (bike lanes, shared lane markings, bicycle boulevards, wide outside lanes, etc.) along major bicycle corridors
- D. Expand the Osgood Canal Greenway and Trail Project's multi-use paths to connect destinations and neighborhoods to the existing system
- E. Ensure that new development, road construction, and maintenance projects include bicycle and pedestrian components

Goal 2: To ensure adequate maintenance of all bicycle and pedestrian infrastructure

While there is a demand for new infrastructure for many parts of town, there is also a need to continually ensure that the existing infrastructure remains in good repair. This protects residents from potential injury and the town from liability. Good maintenance also ensures that infrastructure will continue to serve its purpose.

Objectives:

- A. Ensure adequate funding for infrastructure maintenance
- B. Improve monitoring of potential safety concerns

¹² Again, all map data regarding vulnerability to chronic diseases was compiled by Holland Consulting Planners for the FOCUS Health Gap Analysis.

Goal 3: To increase the number of residents who bike and walk for recreational and transportation purposes

As any good business knows, just because a good or service is provided does not mean that the customer will come. Marketing is needed so the customer knows a product is available and meets one of their needs. In the same way, just providing infrastructure will not ensure that residents and visitors will use it.

It is important for the town to encourage walking and biking for several reasons. For one, more users add value to the infrastructure that is provided so it can serve as many residents and visitors as possible. More walking and biking reduces the burden on area roads so less road maintenance is required and there is less traffic congestions. In addition, active transportation benefits the physical and mental health of the town's residents, encourages community cohesion, and reduces household costs.

Objectives:

- A. Provide bicycle and support infrastructure throughout town
- B. Develop and/or expand programs to encourage walking and bicycling in town
- C. Increase residents' and visitors' knowledge of biking and walking amenities
- D. Expand the recreational multi-use trails through town

Goal 4: To improve the safety of the bicycle and pedestrian modes of transportation

One of the most basic functions of the town's government is to protect the public health and safety. If residents and visitors are walking and biking, and as the town encourages that activity, it needs to be a town priority to make sure those modes of transportation are as safe as possible.

Objectives:

- A. Increase the recognition of and knowledge about walking and biking in Burgaw
- B. Improve intersections and road crossings
- C. Increase enforcement of rules of the road for drivers, cyclists, and pedestrians
- D. Address safety issues in identified areas of concern

Plan Recommendations

A list of recommendations addressing each of the bicycle and pedestrian goals was compiled based on examples from other municipalities, advice from the technical advisory committee, and input from the community open house. A list of all potential recommendations is included in Appendix C.

Each potential recommendation was classified by type: construction, roadway and public property improvements, programs, ordinance and policy amendments, and administrative initiatives. Classifying recommendations by type enabled staff, advisory committees and boards, and the community to better prioritize projects. The Infrastructure Board and staff used this classification list to narrow down the recommendations to those that could feasibly be completed within the scope of the plan, and the community prioritized the construction, roadway and public property improvements, and programs.

Construction Recommendations

New sidewalk on from downtown to hospital along Fremont

Addresses Goal 1 (Connectivity), Objective B: Construct new sidewalks to connect destinations and neighborhoods to the existing system and Goal 2 (Improve Safety), Objective D: Address safety issues in identified areas of concern

Priority	1 out of 30 (high)
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A sidewalk from downtown to the hospital along Fremont St., a town road, has been requested for several years by town residents. This project would link one of the largest area employers (250-499 as of the 4th quarter of 2014) to downtown and area residents to the hospital, sheriff's department, and several doctor's offices. This portion of Fremont St. has also been identified as an area of safety concern for both bicyclists and pedestrians.

The project would include approximately 930 feet of sidewalk, two crosswalks, and 3 wheelchair

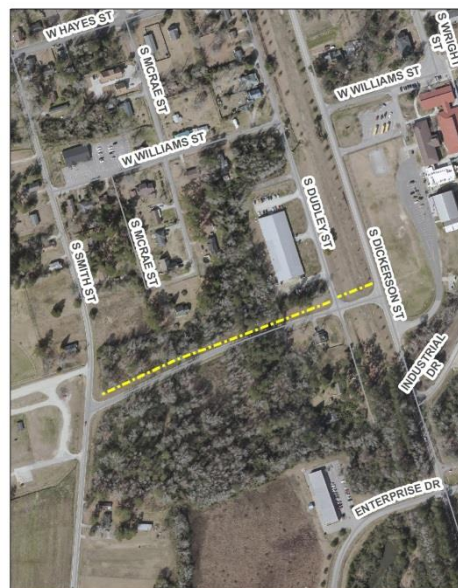
ramps with truncated domes. Work to widen the shoulder at Osgood Canal is necessary, but right-of-way is of sufficient width to accommodate a sidewalk. Some on-street parking would be in conflict with a sidewalk, so the parking would either need to be removed or the hospital would need to grant an easement or install sidewalk on their property. Even with a sidewalk, there would be no way to access a main entrance to the hospital without a sidewalk along Campbell St. and some new sidewalk installed by the hospital.

New sidewalk on W. Clark from Burgaw Middle to Pender Memorial Park

Addresses Goal 1 (Connectivity), Objective B: Construct new sidewalks to connect destinations and neighborhoods to the existing system

Priority	11 out of 30 (medium)
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Another project that has been requested by residents, a sidewalk along W. Clark would provide a safe route to middle school students who practice sports at Pender Memorial Park after school. This is a path students are already taking without a sidewalk or crosswalk at S. Smith St.



W. Clark St. is a town road, but NCDOT would have to approve a crosswalk at S. Smith. It is likely that a sidewalk along S. Smith St. will be a requirement. There is adequate right-of-way along both W. Clark and S. Smith for sidewalks, but students would also have to cross the railroad right-of-way. In the past, the NCDOT rails division would not give approval for pedestrian infrastructure at railroad right-of-way crossings but have more recently indicated that pedestrian improvements are possible through their encroachment agreement process.

Connect the sidewalk on E. Bridgers St. to Osgood Canal Greenway & Trail

**Addresses Goal 1 (Connectivity), Objective A:
Construct new sidewalks to fill in the gaps in the existing system**

Priority	13 out of 30 (medium)
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The sidewalk along E. Bridgers St. (Hwy 53/Hwy 117 Business) stops approximately 328 feet from the intersection with E. Ashe St. and 380 feet from the Osgood Canal and Greenway Trail. This corridor has been identified as an area of safety concern, and the project would link the existing sidewalk system with the trail along Hwy 53 and is included in the NC 53 Corridor Study recommendations.

E. Bridgers St. (Hwy 53/Hwy 117 Business) is a state-maintained street and would be subject to NCDOT requirements regarding sidewalk widths, separation, etc. The existing sidewalk is 4 feet in width and is approximately 10 feet from the edge of pavement. NCDOT recommends a minimum 5-foot sidewalk and a buffer zone of up to 10 feet from the edge of pavement. While there may be enough existing right-of-way for the majority of the sidewalk, additional right-of-way or an easement crossing the residential property on the corner of E. Ashe and N. Timberly may be necessary to move the crossing back from the widest part of the intersection. In addition, there may be grading issues just south of E. Ashe St.

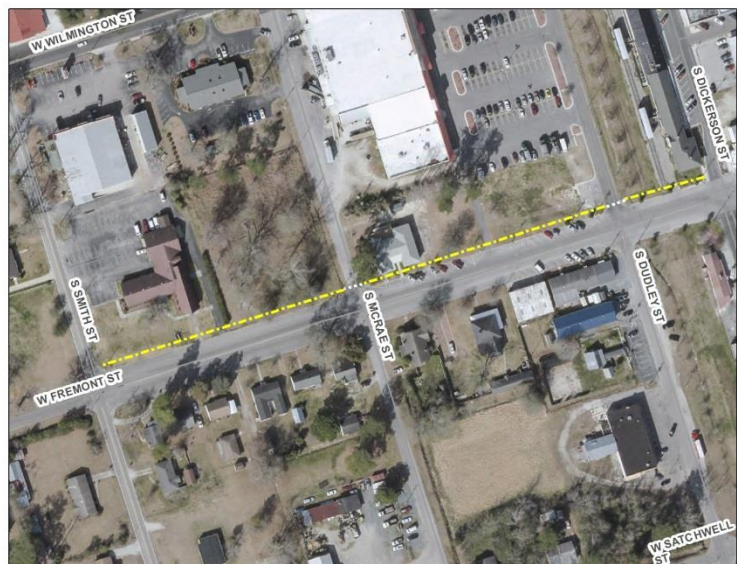


Install sidewalks along W. Fremont St. from Dickerson to Smith

Addresses Goal 4 (Improve Safety), Objective D: Address safety issues in identified areas of concern

Priority	20 out of 30 (medium)
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This project would provide sidewalks along W. Fremont St., connecting the downtown sidewalks and the recommend sidewalk along S. Smith St. This area of town was identified



The right-of-way width should be sufficient to accommodate a five-foot sidewalk and eight feet of separation from the street. The sidewalk may be very close to the Pender Christian Services building, however. An encroachment agreement with NCDOT would be required for the portion of sidewalk across the railroad right-of-way. In all, the project would include approximately 980 feet of sidewalk, three crosswalks, and six curb ramps.

Addresses Goal 1 (Connectivity), Objective B: Construct new sidewalks to connect destinations and neighborhoods to the existing system and Goal 4 (Improve Safety), Objective D: Address safety issues in identified areas of concern

While the right-of-way in this area is sufficient to accommodate a 5-foot standard sidewalk, drainage ditches and mailboxes cause problems in some areas on both sides of the road. S. Smith St. is a state road, a sidewalk is recommended on the Pender County Comprehensive Transportation Plan.

Addresses Goal 1 (Connectivity), Objective A: Construct new sidewalks to fill in the gaps in the existing system and Goal 4 (Improve Safety), Objective D: Address safety issues in identified areas of concern

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recommended in the NC 53 Corridor Study, would provide an important part of this link. In order for the linkage to be complete, however, the intersections improvements at Hwy 53 and Hwy 117 would be necessary.

In this plan, the approximately 1,483 feet of sidewalk is placed on the north side of the road because of the number of potential conflicts on the south side of the road. This would lead to less direct access from the neighborhoods to the south.

Construct Trail along Burgaw Creek from Wallace St. to Hwy 117 and a Sidewalk down Timberly Lane

Addresses Goal 1 (Connectivity), Objective D: Expand the Osgood Canal Greenway and Trail Project's multi-use paths to connect destinations and neighborhoods to the existing system and Goal 3 (Increase Use), Objective D: Expand the recreational multi-use trails through town

Priority	28 out of 30 (low)
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This project would extend the existing multi-use trail portion of the Osgood Canal Greenway and Trail north along Burgaw Creek using the same easement as the current sewer line. In order to loop back to the existing trail, sidewalks would be installed down Timberly Lane and E. Wallace St. While primarily intended for recreational purposes, this project would also benefit low-income residents and those vulnerable to chronic diseases and provide a link for children in one of the town's largest multi-family developments to walk safely to school.

While the town currently already has an easement along Burgaw Creek, it is limited to the existing sewer line. New easement agreements would need to be implemented to cover a recreational trail, and in the past, residents who provided easements for the sewer expressed disapproval of any plans for a trail project.

Some conflicts may result from the location of the sewer line. It does not keep a straight path, and any paved trail is likely to cover it at some point, making repair work and maintenance more difficult.

Recommended Roadway and Public Improvement Projects

Add shared lane markings to busy streets

Addresses Goal 1 (Connectivity), Objective C: Provide appropriate bicycle infrastructure along major bicycle corridors

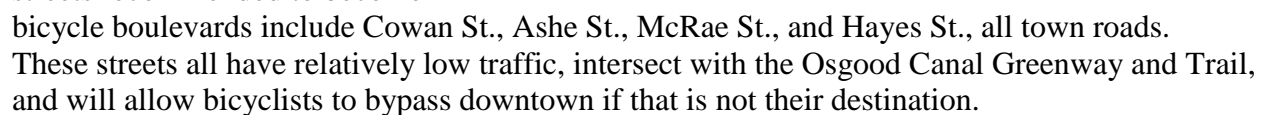
Priority	2 out of 30 (high)
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Shared lane markings (or sharrows) are pavement markings that remind drivers to share the road with bicyclists and can be placed so as to guide bicyclists to the best place to ride on the road,

The addition of shared lane markings is most efficient when resurfacing or restriping is done. While the other roads have recently been resurfaced, Fremont St. is slated for resurfacing in the next five years. The addition of shared lane markings should be included in that project. Because the markings cannot be added to an NCDOT resurfacing project for many years, the town would likely be required to fund the addition of new markings. For consistency, all markings should meet NCDOT standards.

Addresses Goal 1 (Connectivity), Objective C: Provide appropriate bicycle infrastructure along major bicycle corridors

Downtown Burgaw has been identified as an area of safety concern for bicyclists due to the angled parking, which can be in conflict for bicyclists. Establishing bicycle boulevards on streets near downtown can encourage through-cyclists to avoid the potentially dangerous downtown areas. Bicycle boulevards are low-volume and low-speed streets that have been optimized for bicycle travel through treatments such as traffic calming and traffic reduction, signage and pavement markings, and intersection crossing treatments. The streets recommended to become



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Increase lane and paved shoulder width along Penderlea Hwy

Addresses Goal 4 (Improve Safety), Objective D: Address Safety Areas in Identified Areas of Concern

Priority	8 out of 30 (high)
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Penderlea Hwy was identified as dangerous to bicyclists. Based on the in-depth review of this area of concern, it was determined that the narrow travel lanes and drivers exceeding the posted speed limit were the two biggest reasons for safety issues in this area. The Pender County Comprehensive Transportation Plan (CTP) recommends a multi-use path adjacent to this road, but a multi-use path is a longer-term solution, and it may require the purchase of additional right-of-way. Existing right-of-way is only 12-13 feet in width, and NCDOT recommends that multi-use paths be a minimum of 10 feet in width, meaning separation would not be sufficient between travel lanes and the path. As a result, the recommendation is to widen the travel lanes to the recommended 12 feet for roads with this travel speed and provide wide paved shoulders for bicycle traffic.

This project would improve the safety of pedestrians and cyclists who have to use this road. The portion of Penderlea Hwy within the Town of Burgaw corporate limits is roughly a mile (5,280 feet), which increases the cost for this project. There is sufficient right-of-way to accomplish the widening, though. The project would have to go through NCDOT's approval and funding process. While this project would not require a large amount of town resources, the process required would mean less probability that the project will be approved and a longer time period to implement.

Install bike racks downtown

Addresses Goal 3 (Increase Use), Objective A: Provide bicycle support infrastructure throughout town

Priority	9 out of 30 (high)
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Downtown Burgaw is a key destination for bicyclists; however, there are no bicycle racks currently installed there except at the Depot and Town Hall. The town has had requests for bicycle racks, but there is no clear consensus on where they should be placed. This project will include a planning phase to determine the most appropriate locations for bicycles and may need to be combined with a bicycle rack incentive program if adequate space is not available on public property.

Install bike racks at all town parks and buildings

Addresses Goal 3 (Increase Use), Objective A: Provide bicycle support infrastructure throughout town

Priority	12 out of 30 (medium)
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Bike racks are currently installed at Town Hall, Depot, Rotary Park, Harrell Park, and Hankins Park. There are no bike racks at other town buildings or parks. Since the adoption of the Burgaw 2030 Comprehensive Plan, the town has required applicants for conditional use permits to provide bike parking, but there is no parking available for users of some town properties.

Installing bicycle racks will encourage cycling in town, making it easier to use the parks and visit town offices by bike.

Bike Rack Recommendations	
5-Bike Capacity Racks	Ashe St. Park Wilmington St. Park A Johnson Park Public Works Community House Arts Council Building
2-Bike Capacity Racks	Burgaw Entry Peninsula Wilmington St. Park B former Pender County Jail Planning and Inspections Annex

The properties currently without bike racks include: Ashe St. Park, Burgaw Entry Peninsula, Wilmington St. Park A, Wilmington St. Park B, Johnson Park, Public Works office and garage, the Community House, the former Pender County Jail, the Arts Council building, and the Planning and Inspections Annex. Some of these locations are less likely to need as much bicycle parking capacity, so 2-bike capacity racks are recommended in these areas.

The project will entail purchase of the bike racks. Mounting of racks using concrete is recommended, but concrete pads are not required.

Install a trigger for flashing lights at the Hwy 53/Timberly Lane junction

Addresses Goal 4 (Improve Safety), Objective B, Improve intersections and road crossings and Objective D, Address safety issues in identified areas of concern

Priority	14 out of 30 (medium)
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The Osgood Canal Greenway and Trail crossing at the intersection of Hwy 53 and Timberly Lane has been identified as an area of safety concern for residents due to high vehicle speeds and lack of recognition of the pedestrian crossing, especially for drivers heading east. Stop bars have been placed to remind pedestrian and bikers to stop before crossing the street, and the town and NCDOT have worked to increase visibility for east bound traffic; however, some trail users still do not feel comfortable using this portion of the trail.

One remedy for this safety concern is installing a flashing light system that is triggered by bicyclists and pedestrians as they approach the crossing. These systems can supplement warning signs at undersignalized intersections or mid-block crosswalks and use an irregular flash pattern that is similar to emergency flashers on police vehicles.

Because Hwy 53 is a state road, this improvement would have to be approved by NCDOT, but the town would likely have to pay for the improvement if approved.

Narrow travel lane widths and add crosswalks along W. Wilmington/Hwy 53

Addresses Goal 4 (Improve Safety), Objective B, Improve intersections and road crossings and Objective D, Address safety issues in identified areas of concern

Priority	18 out of 30 (medium)
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This recommendation is in accordance with the findings of the NC 53 Corridor Study, which recommends narrowing roadways, installing sidewalks, and marking crosswalks from Smith St. to Hwy 117 Bypass. The western section of this plan, from Smith St. to Dickerson St. does not

currently have sidewalk the way the rest of the corridor does. Because of narrow rights-of-way, the roadway would have to be narrowed in order to install sidewalk, and sidewalks are required by NCDOT before it will approve marked crosswalks. As a result, these improvements would have to be taken as one project rather than piecemeal. In order for NCDOT to fund the improvements, it would have to go through the state's transportation prioritization process and would need to score well enough to receive funding through NCDOT.

Widen Hwy 53 roadway between Hwy 117 and Stag Park Rd.

Addresses Goal 4 (Improve Safety), Objective D, Address safety issues in identified areas of concern

Priority	26 out of 30 (low)
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Much like Penderlea Hwy, this stretch of road was identified as an area of safety concern due to the high speed of travelers and lack of paved shoulders for bicyclists. While the travel lanes are 12' in width, there is no additional area for bicyclists. In addition, this section of roadway is in a prime location for future development and its associated additional traffic. It is recommended that the roadway be widened to accommodate that traffic and include wide paved shoulder. This can be implemented either through NCDOT's prioritization process or on an ad hoc basis as new developments are constructed. As the corridor is developed, however, sidewalks are recommended in addition to the roadway improvements for bicyclists.

Recommended Programs

Safe Routes to School activities

Purpose	To help make walking and biking to school safer
Target Audience	Children and youth, Families
Responsible Party(ies)	Planning Department
Potential Partners	Schools, Pender County Health Department, area organizations
Priority	3 out of 30 (high)
Requirements for implementation	<ul style="list-style-type: none"> • Planning Department would develop partnerships • Planning Department and partners would develop program and plan • Board of Commissioners would choose whether to approve town's role in plan • Planning Department would administer town's portion of plan

Addresses Goal 4 (Improve Safety), Objective A: Increase the recognition of an knowledge about walking and biking in Burgaw

The Safe Routes to School program uses the four E's (education, encouragement, enforcement, and engineering) to help make walking and biking to school safer. Some of the activities of this program dovetail with the other recommendations included in this plan, but their primary focus is increasing the number and safety of children walking and biking to schools. This saves school systems money on buses for students who live relatively close to schools, and increases the amount of physical activity (and ultimately the health and academic success) of students. Safe

Routes programs can also benefit the environment and quality of life of the town. Some potential activities include walking school buses, where groups of children walk together to school led by an adult, and installing trained crossing guards at major intersections used by students.

The Safe Routes to School program recommends a process of coalition building, planning, and evaluating the effects of efforts to increase student walking and biking. This would involve a large amount of staff time to organize activities, and develop community partnerships.

Hold Bicycle Rodeos

Purpose	To provide an opportunity for children to practice and develop bicycling skills
Target Audience	Children and youth
Responsible Party(ies)	Planning Department
Potential Partners	Parks & Recreation Committee, Promotions & Special Events Committee, Town of Burgaw Police Department, Pender County Health Department, bicycling and recreation organizations
Priority	6 out of 30 (high)
Requirements for implementation	<ul style="list-style-type: none"> • Planning Department would work with partners to organize event • Planning Department would hold event with assistance from partners

Addresses Goal 3 (Increase Use), Objective B: Develop and/or expand programs to encourage walking and bicycling in town and Goal 4 (Improve Safety), Objective A: Increase the recognition of and knowledge about walking and biking in Burgaw

Bicycle Rodeos are special events that provide an opportunity for children to practice and develop skills (stopping safely, scanning for traffic, maintaining their bike, fitting for a helmet) that will help them to become better bicyclists and avoid typical crashes. These events are a fun and interactive way to teach important safety skills and rules of the road. They also encourage bicycling by addressing some of the most common concerns parents may have that prevent children and families from bicycling more. Some Bicycle Rodeos also include bike helmet or other safety equipment giveaways.

A variety of town staff (especially police), volunteers, and community partners would be necessary in order to have a successful event. Groups such as the Parks and Recreation Committee, Promotions and Special Events Committee, Pender County Health Department, 4-H, and local PTAs could be of assistance, but it would imperative that skilled cyclists are a part of the program, as they are most knowledgeable of the skills that would be taught at the event.

Walking Field Trips

Purpose	To increase children's activity levels, comfort with navigating through town on foot, and knowledge
Target Audience	Children and youth
Responsible Party(ies)	Planning Department
Potential Partners	Schools, area organizations
Priority	7 out of 30 (high)
Requirements for implementation	<ul style="list-style-type: none">• Planning Department would develop partnership with local schools• Planning Department and local schools would work with area organizations to develop field trip activities• Schools would take field trips; coordination with area organizations may be needed

Addresses Goal 3 (Increase Use), Objective B: Develop and/or expand programs to encourage walking and bicycling in town

Because of the proximity of Burgaw's three schools to a variety of civic, historic, cultural, and environmental resources, walking field trips are an opportunity to encourage and increase children's activity levels, comfort with navigating through town on foot, and knowledge. Walking field trips have proven successful in other areas. For instance, New Hanover County's Tar Heels Go Walking program is a partnership between the Historic Wilmington Foundation and the county schools in which teachers and parent volunteers guide students to a variety of locations around downtown Wilmington, exposing them to historic and/or civic buildings and introducing them to public figures, such as the mayor. A similar program could be developed for Burgaw, but field trips could also incorporate other town resources such as the plant identification sign project around the Osgood Canal Greenway and Trail or cultural arts activities. Each trip could be pre-scheduled to incorporate meeting community figures or experiencing special events or could be developed to allow teachers to schedule them at their convenience.

Walking field trips would require partnerships with other community organizations, especially the schools. Different partnerships would be needed depending on the type of field trip developed, but staff would have to work closely with these organizations to develop the learning objectives and coordinate the timing of field trips.

Family Bicycling Day

Purpose	To incorporate a variety of activities into a specific time period to better leverage marketing and volunteer resources
Target Audience	Town Residents, Families, Children and youth
Responsible Party(ies)	Planning Department
Potential Partners	Parks & Recreation Committee, Promotions & Special Events Committee, Police, Pender County Health Department, area organizations
Priority	10 out of 30 (high)
Requirements for implementation	<ul style="list-style-type: none">• Planning Department would work with partners to organize event• Planning Department would hold event with assistance from partners

Addresses Goal 3 (Increase Use), Objective B: Develop and/or expand programs to encourage walking and bicycling in town

These special events are ways to incorporate a variety of activities, including Bicycle Rodeos, family bike rides, Bike to School or Work Days, and inside-out parades, many of which are also listed as specific recommendations in this plan, into a specific time period to better leverage marketing and volunteer resources. The amount of time, money, and resources required for this recommendation would depend on the types of programs and/or events included.

Senior Mobility Program

Purpose	To help seniors maintain independence and mobility, improve health, and provide an opportunity for social interaction
Target Audience	Seniors
Responsible Party(ies)	Planning Department
Potential Partners	Parks & Recreation Committee, Pender Adult Services, Pender County Health Department, area organizations
Priority	15 out of 30 (medium)
Requirements for implementation	<ul style="list-style-type: none">• Planning Department would create partnership with area organizations• Planning Department and partners will develop mobility program• Planning Department and partners would market and administer program

Addresses Goal 3 (Increase Use), Objective B: Develop and/or expand programs to encourage walking and bicycling in town

Because senior citizens often experience limitations in mobility as they age, programs designed to increase walking and bicycling can help seniors maintain independence and mobility, improve health, and provide an opportunity for social interaction. A senior walking and bicycling program can include group walks or bicycle rides, trail maps at the Senior Center and other

locations, and senior participation in Safe Routes to Schools activities (crossing guard, walking school bus volunteer, etc.).

Marketing program to inform through-traffic and visitors of town's support of cyclists and walkers

Purpose	To inform through-traffic and visitors of the importance of walking and biking in Burgaw
Target Audience	Area Visitors
Responsible Party(ies)	Planning Department
Potential Partners	Parks & Recreation Committee, Public Works, NCDOT, area organizations
Priority	16 out of 30 (medium)
Requirements for implementation	<ul style="list-style-type: none"> • Planning Department would work with partners to develop marketing program • Board of Commissioners would choose whether to adopt program • If signage is included, Planning Department would develop budget request for signs and contact NCDOT regarding approvals • Board of Commissioners would choose to budget for signage • Planning Department would organize the printing and/or fabrication of materials and would arrange with Public Works for any sign installations

Addresses Goal 4 (Improve Safety), Objective A: Increase the recognition of and knowledge about walking and biking in Burgaw

A marketing program to inform through-traffic and visitors of the importance of walking and biking in Burgaw would have at least two components—marketing materials targeted toward the surrounding communities who visit or travel through town most frequently and signage or other visual cues for less frequent through travelers. Staff time or a consultant would be required to develop the program, and funding would be necessary in order to produce the marketing materials and the signage.

Expand and market Burgaw Trailblazers

Purpose	To expand a program that encourages walking and bicycling in town
Target Audience	Town Residents
Responsible Party(ies)	Planning Department
Potential Partners	Parks & Recreation Committee
Priority	17 out of 30 (medium)
Requirements for implementation	<ul style="list-style-type: none"> • Planning Department and Parks & Recreation Committee would market Burgaw Trailblazers program • Planning Department would continue to administer program

Addresses Goal 3 (Increase Use), Objective B: Develop and/or expand programs to encourage walking and bicycling in town

The town's planning department started the Burgaw Trailblazers program in the fall of 2013, based on the recommendations of the Burgaw 2030 Comprehensive Land Use Plan. The program allows people to track their mileage, send it in to the town, and work together to virtually travel to sites across the United States. There are currently only seven participants.

Currently, staff time includes sending reminders to participants to turn in their mileage, adding everyone's results, and mapping the new location along a walking route. The town's website does have a dedicated webpage. Tracking forms and walking route information are also available on the website.

Given the current low level of involvement, the program is not worth the staff time to track, map, and update the webpage. However, the level of administrative staff time would not grow as a result of expanding the program. Marketing the program would require the involvement of community volunteers, such as the Parks and Recreation Committee, or additional staff time.

Public education campaign to educate residents on laws

Purpose	To educate drivers, walkers, and bicyclists on rules of the road concerning bicyclists and pedestrians
Target Audience	Town Residents
Responsible Party(ies)	Planning Department
Potential Partners	Police, Pender County Health Department, schools, area organizations
Priority	19 out of 30 (medium)
Requirements for implementation	<ul style="list-style-type: none">• Planning Department would work with partners to develop educational materials and curriculum• Educational materials would be printed and distributed• Planning Department would work with partners to plan for an special education events included in education campaign

Addresses Goal 4 (Improve Safety), Objective A: Increase the recognition of and knowledge about walking and biking in Burgaw

Public education campaigns should target drivers, pedestrians, and bicyclists in order to be most effective. Many citizens, especially the young, do not know the rules of the road concerning bicyclists and pedestrians or do not feel comfortable following them because of safety concerns (i.e. biking against rather than with traffic). This recommendation can include a variety of different modes and targeted audiences. Educational information can be dispersed through printed materials, internet based materials, or public events (such as a Bicycle Rodeo or Family Bicycling Day). Important messages for drivers include passing with care, recognition of every corner as a crosswalk, and reminders that they have friends who bike and walk. Bicyclists should learn how to maneuver safely in traffic and at intersection and to ensure their equipment is in good condition, and pedestrians can be taught to walk against traffic and cross at an intersection.

Walk and Bike to work or school days/weeks

Purpose	To encourage participants to walk or bike to school and/or work
Target Audience	Town Residents; Children and youth
Responsible Party(ies)	Planning Department
Potential Partners	Parks & Recreation Committee, Promotions & Special Events Committee, Pender County Health Department, Police, schools and PTAs; other area organizations
Priority	21 out of 30 (low)
Requirements for implementation	<ul style="list-style-type: none">• Planning Department would work with partners to organize event• Planning Department would hold event with assistance from partners

Addresses Goal 3 (Increase Use), Objective B: Develop and/or expand programs to encourage walking and bicycling in town

These special events encourage participants to walk or bike to school and/or to walk or bike to work. They can be targeted to a specific demographic (school children or resident workers) and to a specific mode of travel (walking or bicycling), but they could also target both. The first Walk to School Day was held in the U.S. in 1997 and is usually held in October. National Bike to School Day usually is held in May in coordination with the League of American Bicyclists' National Bike Month. This event can serve as a part of or an introductory program for other Safe Routes to School activities, such as walking school buses, implementation of crossing guards.

In order for this event to be successful and safe, a large number of community volunteers will be needed for marketing and supervision.

Walking Storybook or other trail amenities

Purpose	To develop programs to encourage walking and bicycling in town
Target Audience	Town Residents, Children and youth
Responsible Party(ies)	Planning Department
Potential Partners	Parks & Recreation Committee; area organizations
Priority	23 out of 30 (low)
Requirements for implementation	<ul style="list-style-type: none">• Board of Commissioners would approve specific amenity/amenities desired• Planning Board would work with Parks & Recreation Committee and area organizations to develop plan for amenity/ies and budget• Board of Commissioners would choose whether to approve plan and budget for implementation• Planning Board would implement plan

Addresses Goal 3 (Increase Use), Objective B: Develop and/or expand programs to encourage walking and bicycling in town

Walking storybooks are one way to encourage families with young children to use the town's existing trail system. Signs, each displaying one page from a storybook, are placed along a route to provide families a way to combine physical activity and the development of literacy skills. Other trail amenities can also encourage more use of the Osgood Canal Greenway and Trail; for instance, installing exercise equipment along the trail has also been discussed. For any permanent feature, it would be important to balance the desire for the feature with ease of maintenance and not altering the "natural" feel of the trail.

Installation of equipment and/or signs would require funding. Grants are potentially available for each. Because of the temporary nature of walking storybooks, community partnerships may be required to organize and market the initiative successfully.

Hold Trailblazers Team Challenge annually

Purpose	To expand a program that encourages walking and bicycling in town
Target Audience	Town Residents, Businesses, Organizations
Responsible Party(ies)	Planning Department
Potential Partners	Parks & Recreation Committee, area organizations
Priority	24 out of 30 (low)
Requirements for implementation	<ul style="list-style-type: none"> • Planning Department and Parks & Recreation Committee would create partnerships with area organizations and market team challenge • Planning Department would administer challenge • Participants and winning teams would be recognized at Board of Commissioners meeting

Addresses Goal 3 (Increase Use), Objective B: Develop and/or expand programs to encourage walking and bicycling in town

The Trailblazers Team Challenge was a 12-week competition that was held in early 2014. Teams of 2-5 members competed to gain the greatest average mileage per team member in one of three categories: walking only, mixed team (walking and running), and running only. Nine teams competed, and the winning team in each category was recognized at a Board of Commissioners meeting.

No additional funding is required, and staff time includes tracking of each team's result on a weekly basis for the twelve weeks of the event. In order to expand participation, involvement from community groups, such as the Parks and Recreation Committee, would be needed.

Greenway Ambassadors program

Purpose	To assist in controlling litter and crime along trail
Target Audience	Town Residents
Responsible Party(ies)	Public Works
Potential Partners	
Priority	25 out of 30 (low)
Requirements for implementation	<ul style="list-style-type: none">• Public Works would create outline of program• Policy and Finance Board would review program draft• Board of Commissioners would determine whether to adopt• Public Works would recruit and train ambassadors

Addresses Goal 2 (Maintenance), Objective B: Improve monitoring of potential safety concerns

The Greenway Ambassadors program would organize and train residents who regularly walk or bike the Osgood Canal Greenway and Trail to identify maintenance or safety concerns. Each Ambassador would have a particular area of responsibility and could assist in controlling litter and crime, alerting the community that the facility is being monitored and that users take an active role in monitoring the trail.

This program would be housed in the Public Works department and would require staff training and monitoring of volunteers.

Burgaw Bike Month

Purpose	To incorporate a variety of activities into a specific time period to better leverage marketing and volunteer resources
Target Audience	Town Residents, Families, Children and youth
Responsible Party(ies)	Planning Department
Potential Partners	Parks & Recreation Committee, Promotions & Special Events Committee, Police, Pender County Health Department, area organizations
Priority	29 out of 30 (low)
Requirements for implementation	<ul style="list-style-type: none">• Planning Department would work with partners to organize event• Planning Department would hold event with assistance from partners

Addresses Goal 3 (Increase Use), Objective B: Develop and/or expand programs to encourage walking and bicycling in town

These special events are ways to incorporate a variety of activities, including Bicycle Rodeos, family bike rides, Bike to School or Work Days, and inside-out parades, many of which are also listed as specific recommendations in this plan, into a specific time period to better leverage marketing and volunteer resources. The amount of time, money, and resources required for this recommendation would depend on the types of programs and/or events included.

Bike rack incentives

Purpose	To increase the number of bike racks throughout town without adding new regulations
Target Audience	Existing Businesses
Responsible Party(ies)	Planning Department
Potential Partners	Finance
Priority	30 out of 30 (low)
Requirements for implementation	<ul style="list-style-type: none">• Planning Department would work with Finance to determine appropriate incentives• Policy and Finance Board would review incentives• Board of Commissioners would determine whether to adopt• Planning Department would market program

Addresses Goal 3 (Increase Use), Objective A: Provide bicycle support infrastructure throughout town

While the town has begun requiring new developments and businesses requiring a conditional use permit install bicycle racks, there is no current mechanism to require or encourage existing businesses to install them. An incentive program could provide a mechanism to increase the number of bike racks throughout town without adding new regulations. The town could subsidize the cost of bike racks and recognize the businesses and developments that participate through a bicycle infrastructure map available to area residents and visitors.

Subsidizing the cost of bicycle racks would require an investment of funds by the town. The recognition portion could be conducted by town staff at current staffing levels without additional funding.

Recommended Ordinance and Policy Amendments

Establish standards for sidewalks for new development projects

Purpose	To allow the town to require all new developments to install sidewalks or provide bicycle and pedestrian amenities
Target Audience	Developers
Responsible Party(ies)	Planning Department
Potential Partners	Public Works
Priority	Not ranked by community; high priority for staff
Requirements for implementation	<ul style="list-style-type: none">• Planning Department would work with Public Works to determine appropriate standards for new development• Ordinance amendment would be reviewed by Planning Board• Public hearing would be held & Board of Commissioners would choose whether to adopt

Addresses Goal 1 (Connectivity), Objective E: Ensure that new development, road construction, and maintenance projects include bicycle and pedestrian components

Currently, the town does not require new developments to install sidewalks or provide bicycle and pedestrian amenities, except through the subdivision process or as a condition on a conditional use permit. The town can change the Unified Development Ordinance to require this in all locations or in certain zoning districts (such as the B-2, Highway Business, and GA, Gateway Overlay).

Such a regulation would not immediately contribute to connectivity, but over time, the possibility of providing comprehensive pedestrian infrastructure would be achieved without the town having to implement a large-scale pedestrian project. New sidewalks may encourage more pedestrian use in the short-term and is likely to have mixed results regarding safety. In some areas, pedestrians would be safer, but due to a lack of immediate connectivity and additional use, there may also be an increase in safety issues.

This recommendation's primary constraint would be feasibility of implementation due to political opposition. However, sidewalk construction is routinely required for new construction through subdivision and conditional use approvals.

Adopt a complete streets policy

Purpose	To guide the town on how to incorporate alternate modes of transportation into roadway projects, both public and private
Target Audience	Town of Burgaw
Responsible Party(ies)	Planning Department
Potential Partners	Public Works
Priority	Not ranked by community; high priority for staff
Requirements for implementation	<ul style="list-style-type: none"> • Planning Department would work with Public Works to determine appropriate policy guidelines • Policy document would be reviewed by Policy and Finance Board • Board of Commissioners would choose whether to adopt

Addresses Goal 1 (Connectivity), Objective E: Ensure that new development, road construction, and maintenance projects include bicycle and pedestrian components

A complete street is one that is designed and operated to safely accommodate all users, including pedestrians, bicyclists, and drivers. In 2009, the North Carolina Department of Transportation (NCDOT) adopted a complete streets policy and developed planning and design guidelines that apply to all state maintained roads. The policies and guidelines do not apply to town maintained roads, however, and a policy and design document that could guide the town on how to incorporate other modes of transportation in its roadway projects will be beneficial in ensuring that town maintained roads become safer for pedestrians and bicyclists. The design guidelines could also apply to new developments, ensuring that each new subdivision and development project improves the safety and mobility of bicyclists and pedestrians.

The town would need to be careful in striking a balance between what is optimal and what it has the capacity to construct and maintain. This policy would primarily be a guideline for the town itself.

Establish sidewalk districts where developers can pay fee-in-lieu

Purpose	To enable town to pool money across development projects to consolidate and phase sidewalks to remove and reduce gaps in system
Target Audience	Developers
Responsible Party(ies)	Planning Department
Potential Partners	Finance
Priority	Not ranked by community; low priority for staff
Requirements for implementation	<ul style="list-style-type: none">• Planning Department would work with Finance to set up fee-in-lieu program• Planning Department would work with Planning Board to determine sidewalk districts and ordinance amendments• Policy and Finance Board would review fee-in-lieu program• Planning Board would review ordinance amendments• Public hearing would be held to & Board of Commissioners would choose whether to adopt sidewalk districts and ordinance amendments• Board of Commissioners would choose whether to adopt fee-in-lieu program

Addresses Goal 1 (Connectivity), Objective A: Construct new sidewalks to fill in the gaps in the existing system

Some North Carolina towns and cities, such as Asheville, Conover, Greensboro, Salisbury, and Shallotte have established Sidewalk Districts in order to avoid the infrastructure gaps that can be the result of requiring new developments construct their own sidewalks. A fee-in-lieu sidewalk program would enable the town to pool money across development projects and consolidate and phase sidewalk provision. When the sidewalk that would be required for an individual development is not identified as a needed pedestrian link, there is not sufficient right-of-way, or other pre-determined condition is met, a developer would be allowed to pay the town a fee-in-lieu of constructing the sidewalk. The town could then use that money to construct a sidewalk in the same Sidewalk District as the development that is an important link. The developer would also provide the town an easement for future sidewalk construction across its property.

In conjunction with the proposed recommendation to require all developments to construct sidewalks, this recommendation could ensure that new sidewalks are as beneficial as possible to the whole community. However, it would require the town to both administer a separate sidewalk fund and develop sidewalk construction projects.

Recommended Administrative Initiatives

Designate annual funding for sidewalk and bicycle system maintenance

Purpose	To ensure adequate funding for infrastructure maintenance
Target Audience	Town of Burgaw
Responsible Party(ies)	Board of Commissioners
Potential Partners	
Priority	Not ranked by community; high priority for staff
Requirements for implementation	<ul style="list-style-type: none">• Infrastructure Board would recommend that annual funds be budgeted for sidewalk and bicycle system maintenance• Policy and Finance Board would recommend budget that included annual funding• Board of Commissioners would adopt budget with funding for sidewalk and bicycle system maintenance included

Addresses Goal 2 (Maintenance), Objective A: Ensure adequate funding for infrastructure maintenance

While the town as increased its maintenance and construction of sidewalks in recent years, it has not had a consistent funding methodology. Some years, a designated amount of funding is budgeted, and in others, it is allocated from an unreserved fund on an as-needed basis. As a result, little sidewalk maintenance is conducted some years, while large projects are required in others. Designating a portion of the annual Powell Bill funds for bicycle and pedestrian system maintenance each year would allow the town to better understand the ongoing maintenance needs of the system and its capacity for new projects, would increase the amount of ongoing maintenance conduct each year, and would reduce the need for large-scale projects after safety concerns have grown.

Streamline the process to report potential safety concerns and maintenance needs

Purpose	To improve monitoring of potential safety concerns
Target Audience	Town Residents
Responsible Party(ies)	Public Works
Potential Partners	
Priority	Not ranked by community; high priority for staff
Requirements for implementation	<ul style="list-style-type: none">• Interactive features would be added to town website to allow town residents report safety issues• Public Works staff would flag and send work orders to appropriate personnel• Staff would address safety concerns and close work orders

Addresses Goal 2 (Maintenance), Objective B: Improve monitoring of potential safety concerns

In Fiscal Year 2015-2016, the town will be implementing a new asset management program called Utility Cloud. This program will enable town staff to flag and send work orders regarding

potential safety concerns while in the field. It can also be tied to interactive features possible on the town website to allow town residents to easily inform the town of potential issues. This will allow the town to track when multiple complaints arise regarding the same areas to assist in prioritizing maintenance projects.

Develop walking & biking maps and distribute widely

Purpose	To increase resident knowledge of existing amenities and their use
Target Audience	Town Residents
Responsible Party(ies)	Planning Department
Potential Partners	
Priority	Not ranked by community; medium priority for staff
Requirements for implementation	<ul style="list-style-type: none"> • Planning staff would develop walking and biking maps • Maps would be printed and distributed to area organizations

Addresses Goal 3 (Increase Use), Objective C: Increase residents' and visitors' knowledge of biking and walking amenities

Planning staff has developed a map of the Osgood Canal Greenway and Trail, which can be found on the town's website. However, multiple agencies have contacted the department in the past looking for hard copy maps, and the existing map does not include information on other areas to walk and bike around town. A comprehensive map, printed and distributed to area organizations and businesses, could increase residents' knowledge of the existing amenities and their use of those facilities.

Market portions of the Mountains to Sea Trail in western Pender

Purpose	To market Coastal Crescent route to western Pender residents
Target Audience	Area Residents
Responsible Party(ies)	Planning Department
Potential Partners	Promotions & Special Events Committee, Parks & Recreation Committee, Pender County Tourism, Moores Creek National Battlefield, Penderlea Homestead Museum, Pender County Planning, Village of St. Helena, other area organizations
Priority	Not ranked by community; low priority for staff
Requirements for implementation	<ul style="list-style-type: none"> • Planning Department would develop partnerships with other area organizations • Planning staff would work to with partners to develop route branches and marketing materials • Funding assistance would be requested of community partners and Town of Burgaw • Marketing materials would be printed and distributed

Addresses Goal 3 (Increase Use), Objective C: Increase residents' and visitors' knowledge of biking and walking amenities

In 2015, the Friends of the Mountains-to-Sea Trail and NC State Parks announced an alternate route for the trail that would direct through-hikers and bicyclists through Pender County, including Burgaw. The route through western Pender, the portion Burgaw is a part of, may also be of interest to local hikers and bicyclists, and the town could work to establish a partnership with representatives from Moores Creek National Battlefield, Pender County Tourism, Penderlea Homestead Museum, and other organizations across western Pender to market the trail route to local residents. It could also work with other agencies to develop its own historical trail routes, branching off of the Coastal Crescent route, to incorporate important sites, such as the Peter and Paul Russian Orthodox Church in St. Helena.

This may be a major staff and/or committee activity, and additional funding for marketing material may be required.

Implementation Strategy and Plan

Not all of the recommendations prioritized during the planning process will be able to be implemented in the time frame of this plan (5-10 years). The goal of the plan was two-fold—to determine short and medium term priorities for implementation and to develop a comprehensive list of strategies that could be implemented as opportunities arose.

Funding and staff capacity are two of the most important factors in determining when and if particular projects will be completed. Some projects are more appropriate for town funding; others can be funded through federal, state, or grant sources. For instance, the shared lane markings and bicycle boulevards are most appropriately funded through town funding or grants if they become available because of potential projected costs and priority level. Large projects, such as the W. Wilmington St. improvements would be more likely to be funded at the state or federal level.

Recommendations can also be grouped in order to leverage funding. The following recommendation groups would all be eligible for assorted federal funds administered through NCDOT and prioritized in the SPOT process. Some grouping, or parts of groupings, may be eligible for other funding sources. Because federal funding requires a 20% match, these other funding sources may be able to be leveraged to reduce any costs for town residents.

Recommendation Grouping	Potential Funding Sources			
	Federal Funds (assorted)	State Strategic Transportation Improvement Program	Parks & Recreation Trust Fund	Other (SPOT Safety, other grants)
Sidewalk to hospital				
Penderlea Hwy improvements				
W. Clark, W. Fremont, & S. Smith sidewalks				
E. Bridgers sidewalk, crosswalk lights, Hwy 53 sidewalk				
W. Wilmington St. sidewalk				
Widen Hwy 53				
New trail & sidewalk along Timberly				

The following implementation plan is based on the priorities of the community but takes into account time, funding, and capacity constraints. This implementation plan will need to be revised as funding decisions are made and staff capacity changes; however, this plan will direct the work activities of town staff over the next 5-10 years.

Phase 1: Preparation (FY 2015-2016)

- Submit the following projects to NCDOT for prioritization for federal and state funding:¹³
 - Sidewalk to hospital
 - Penderlea Hwy. widening
 - W. Clark sidewalk, W. Fremont sidewalk, and S. Smith sidewalk
 - E. Bridgers sidewalk, crosswalk improvements at Timberly and Hwy 53, and Hwy 53 sidewalk
- Submit the following projects to NCDOT for prioritization for state highway funding:¹⁴
 - Widen Hwy 53 between Hwy 117 and Stag Park
 - W. Wilmington improvements
- Prioritize the following projects for town funding in the Capital Improvement Project process:
 - Shared lane markings on busy roads
 - Bicycle boulevards around downtown
- Submit funding request for engineering estimates in FY 2016-2017 budget to prepare for potential grant applications
- Planning Department will start West Side Trail & Parks project
- Planning Department will start to work with partners on Safe Routes to School activities
- Planning Department will work to establish standards for sidewalks for new development projects
- Planning Department will apply for PARTF funding for prioritized parks projects, if applicable
- Board of Commissioners will designate funding for sidewalk and bicycle system maintenance

Phase 2: Program Development (FY 2016-2017 to FY 2018-2019)

- Construction and improvement projects will be developed as outlined in funding priorities
- Planning Department and Public Works will develop a complete streets policy for consideration by the Board of Commissioners
- Public Works will streamline the process to report potential safety concerns and maintenance needs
- Public Works will regularly maintain sidewalk and bike system infrastructure
- Police will continue to enforce safety violations by drivers, bicyclists, and pedestrians

¹³ Not all projects may be included in prioritization due to a limited number of spots. Project priorities will be taken into account if not all can be included, and alternate funding strategies may be required.

¹⁴ See above. As a note, the W. Wilmington St. improvements were part of the Hwy 53 Corridor improvements already in the prioritization process.

- Planning Department will work with partners on the following activities:
 - Safe Routes to School
 - Walking Field Trips
 - Burgaw Trailblazers
 - Family Bicycling Day (including Bicycle Rodeo)
 - Developing walking & biking maps and distributing
- A plan for installing bike racks downtown will be developed and implemented
- Bike racks will be installed at all town properties

Phase 3: Program Expansion (FY 2019-2020 to FY 2021-2022)

- Construction and improvement projects will be developed as outlined in funding priorities
- Public Works will regularly maintain sidewalk and bike system infrastructure
- Police will continue to enforce safety violations by drivers, bicyclists, and pedestrians
- Planning Department will work with partners to continue the following activities:
 - Safe Routes to School
 - Walking Field Trips
 - Burgaw Trailblazers
 - Family Bicycling Day (including Bicycle Rodeo)
- Planning Department will develop and/or expand the following activities:
 - Senior Mobility Program
 - Marketing program for visitors
 - Public Education Campaign

Phase 4: Evaluation (FY 2022-2023)

- Construction and improvement projects will be developed as outlined in funding priorities
- Public Works will regularly maintain sidewalk and bike system infrastructure
- Police will continue to enforce safety violations by drivers, bicyclists, and pedestrians
- Planning Department will work with partners to continue the following activities:
 - Safe Routes to School
 - Walking Field Trips
 - Burgaw Trailblazers
 - Family Bicycling Day (including Bicycle Rodeo)
 - Senior Mobility Program
 - Public Education Campaign
 - Marketing program for visitors
- Planning Department will begin updating Bicycle and Pedestrian Plan based on achievements of previous 8 years

Evaluation and Monitoring

Without regular evaluation, the goals of this plan are unlikely to be reached. Using the following monitoring plan, a report will be prepared each year that informs the town board, staff, and residents on whether the plan is being implemented as planned and whether the implementation strategies are affecting the achievement of the plan's goals.

When Information Will Be Gathered	Type of Information	Goals and Objectives Addressed	Data Source
Annually	Implementation Activities	All	Multiple
	Funding Levels	Goal 2	Finance
	# of safety and maintenance complaints	Goal 2	Public Works
	# of safety and maintenance activity	Goal 2	Public Works
Biannually	Level of walking and biking in town	Goal 3	Community Survey
	Knowledge of walking and biking amenities	Goal 3	Community Survey
	Perception of safety	Goal 3	Community Survey
As Available	Bicycle and pedestrian crash data	Goal 4	NCDOT
	Bicycle and pedestrian commuting statistics	Goal 3	US Census Bureau